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ORIGINAL ARTICLES.

THE STATISTIC EVIDENCES OF THE VALUE OF VACCINATION TO THE HUMAN RACE, PAST, PRESENT AND FUTURE.

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"Nothing however beneficent can escape the criticism of the times in which we live. The criticism of vaccination, often passionate and violent, related chiefly to points which, however interesting they may be, leave the main question unaffected. We may speculate about the possibility of the potency of vaccine being exhausted in the human family; we may be surprised to find that people with good vaccine scars sometimes have smallpox; we may dispute as much as we please about the average period when re-vaccination may be considered a prudent safeguard; but after all we find that we rest in a security against the horrid pestilence of smallpox unknown to former generations."—Dr. George Derby.

Mr. President and Gentlemen:—By invitation of your committee on the celebration of the anniversary of the discovery of vaccination, I appear before you this afternoon. Your greatly beloved and renowned Nestor, Dr. Davis, has most ably and charmingly made you acquainted with much of "The Work and Character of Jenner." The learned Surgeon-General of the United States Army, Dr. Sternberg, has delighted and edified you in his masterly presentation of the question, "The Scientific Basis of Vaccination." In my paper I am limited to "The Statistic Evidence of the Value of Vaccination to the Human Race, Past, Present and Future."

The great Jenner has long since gone to his reward; vaccination has reached a century old; millions of human lives, as I shall show, have been preserved by the fruits of Jenner's genius; yet to-day, no less than one hundred years ago, thousands upon thousands of men, some intelligent though designing, some intelligent though deluded, the great mass of them fanatical and ignorant, decry vaccination as not only being of no service to humanity, but positively a nuisance injurious to health and life, while millions of our fellow men are utterly ignorant of, or indifferent to the matter.

The study of statistics, gentlemen, is dry, uninviting, irksome to the vast majority of men. I therefore fear that I shall at least fail to interest, if indeed I do not weary you. I crave your attention for the reason that however dry and wearisome statistics may be, it is only by careful, critical study of statistics that we are enabled to rightly estimate the value and the magnitude of the immortal Jenner's discovery. In life, Jenner wisely and persistently insisted that the decision as to the value of his discovery should rest upon "that keenest of all arguments for or against the practice of vaccination, those which are engraved with the point of the lancet." I am here to present such an argument.

Standing as I do on this occasion to speak for the illustrious dead, I have attempted to so gather and marshal the statistic evidences of the value of his discovery that every intelligent, fair-minded man can know the truth about vaccination.

I propose to present you statistic data from almost every civilized country upon earth, indubitably proving that vaccination duly and efficiently performed is absolutely prophylactic against smallpox, and innocuous to human health and life. Be not frightened at the mass of manuscript before me, I shall read only a fractional part of it, and leave the balance to be studied at your leisure after it shall have been published. That I may present in an orderly arrangement the data bearing upon my subject I will lay down certain propositions and furnish the facts relative to each as it is reached.

Unless you are familiar with the history of smallpox in prevaccinal times, and know what it is at the present day independent of vaccination, you can not form a proper estimate of the beneficent results of Jenner's discovery. I shall, therefore, first show what smallpox was in pre-vaccinal times; and, second, what it is to-day in individuals and communities who neglect to avail themselves of its benefits.

PROPOSITION 1.

Smallpox uncontrolled by vaccination was one of the most universally *prevalent and destructive diseases* of the human race. I shall first show this by historic records both professional and non-professional.

Prior to the introduction of vaccination, smallpox, except in remote or isolated populations, having infrequent and difficult intercourse with the business world, was a well nigh universal disease, existing continuously as an endemic in large communities, and breaking loose from its endemic haunts every few years[1] it assumed epidemic and not infrequently pandemic proportions. All classes, conditions and ages of people were attacked by smallpox. While most fatal and prevalent in the over-crowded homes of the poor, it spared not the dwellers in mansions nor the palaces of kings.[2] So universally prevalent was smallpox that it was quite exceptional in populous communities for anyone to reach adult age without having been attacked by the disease.[3] In 1518 smallpox concurred with fire and sword and famine to complete the depopulation of St. Domingo.[4] In the sixteenth century smallpox invaded Mexico,[5] destroying three million, five hundred thousand of her population. In 1563 smallpox invaded Brazil and exterminated whole races of men. In the Province of Quito (according to De la Condamine) it caused the death of 100,000 Indians. It decimated Siberia[6] and Kamschatka.[7] Several times this destructive disease has well nigh depopulated Greenland and Iceland.[8] Under the devastation of this cruel and relentless enemy communities literally dissolved themselves.[9] Remote and unprotected populations in North America have been most cruelly scourged by epidemics of smallpox.[10]

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[1] Hillary on Smallpox, London, 1735.

[2] Burnett's history of Mary and William; Walpole's letters, 1750. Pepys Evelyn, St. Simon Besenval, Vehse, etc.

[3] Hillary, loc. cit., Haygarth, Smallpox, London, 1793.

[4] John Simon K.C.B., F.R.S. First Report Royal Commission Enquiry on Vaccination 1839.

[5] Prescott (Conquest of Mexico Vol. 6.) describes this epidemic as "sweeping over the land like fire over the prairies, smiting down prince and peasant . . . . . leaving its path strewn with the dead bodies of the natives, who perished in heaps like cattle stricken with the murrain. Dr. Stricker (Oppenheim's Zeitsche Vol. 34), referring to several subsequent epidemics of smallpox in Mexico says: In 1779 its ravages were dreadful. In the capital alone nearly 9,000 died out of 24,561 attacked. He then contrasts with the above periods the history of smallpox since vaccination. He says: In 1829-30 when smallpox was most severely epidemic, vaccination was almost always protective. In 1830-31 there died in New Leon 1,740 persons, without a single vaccinated person having contracted the disease.

[6] Pallas (Reisen, St. Petersburg, 1770) cites more than one epidemic of smallpox in Siberia, and in referring especially to the Ostjaks (vol. 3, p. 50) mentions this disease as the chief obstacle to an increase of their numbers.

[7] Capt. Cook (Voyages to Pacific Ocean 1785) refers to the first appearance of smallpox 1767 in Kamschatka as "marking its progress with ravages not less dreadful than the plague, and seeming to threaten their extinction."

[8] John Simon (loc. cit.), 1734, Greenland was first invaded by smallpox and lost by this one disease about two-thirds of her population. Iceland had been invaded by smallpox seventeen times prior to 1707. In this year 18,000, out of a total population of 50,000, died by this cruel disease. Crantz's History of Greenland, London, 1767, referring to the epidemic of 1707 says: "Empty depopulated houses and unburied corpses, some within and some without the houses, were commonly encountered. In one Island they found one girl with the smallpox on her and her three little brothers, the father having first buried all the people in the place, had laid himself and his smallest sick child in a grave raised with stone, and ordered the girl to cover him. Sir George MacKenzie (Travels in Iceland, Edin. 1811) speaking of smallpox in Iceland says: "Its ravages have been such as to render this disease important even in the political history of the island."

[9] Ring, in his treatise on Cowpox, says, that after such a dispersion the capital of Thibet once remained for three years without inhabitants. He also, in referring to smallpox near the end of the 18th century speaks of a tribe of esquimaux on the Labrador coast having been put to flight by this disease and did not return for a space of three years: that their country had become a desert, without a living soul in it, but they found the skeletons of 500 persons who had fallen victims to that horrible disease. Dr. Mead's works describes the Hottentots on a particular occasion as drawing lines of defense against any communication with the sick, and shooting all who attempted to pass.

[10] Catlin (Letters and Notes on the Manners and Customs of the

So much for the epidemic prevalence of smallpox in those portions of the world having less constant and direct relations with more populous centers. In Europe, as might have been expected from constant intercourse of peoples of towns and nations, the disease was, in the run of years, as deadly as in the places above cited. "Its strength indeed was differently distributed. Not as in Greenland, twice or thrice in a century, but incessantly, that fatal sickle was in motion, and the harvest counted from day to day. Instead of coming after long absence on masses of population entirely unprotected against the infection, it recurred in each place so frequently that, for the most part, at any given moment, a more or less considerable majority of the inhabitants would have faced the danger before they would have obtained against its attacks that protective exemption which was generally the good fortune of survivors. But it is a moderate computation that for every five persons thus, at the price of much past suffering, almost secured against the disease, one at least must have died." John Simon.

Macauley,[11] the great English historian, speaking of the smallpox near the close of the seventeenth century: "That disease (smallpox) over which science has since achieved a succession of glorious and beneficent victories, was then the most terrible of all the ministers of death. The havoc of the plague had been far more rapid; but the plague had visited our shores only once or twice within living memory; and the smallpox was always present, filling the churchyards with corpses, tormenting with constant fears all whom it had not yet stricken, leaving on those whose lives it spared the hideous traces of its power, turning the babe into a changeling at which the mother shuddered, and making the eyes and cheek of the betrothed maiden objects of horror to the lover. Toward the end of the year 1694, this pestilence was more than usually severe."

Sir Gilbert Blaine[12] says: "It is greatly within the truth to assert that smallpox has destroyed a hundred for every one that has perished by plague."

Dr. Black, Lussmileh, Frank and several other reputable writers, estimated that the average annual mortality from smallpox in Europe alone was in pre-vaccinal times 494,000. Within the London bills of mortality[13] smallpox, when not at its worst, averaged a fourteenth of the annual total deaths; a fourteenth too, at times when that total, as compared with the population, represented, perhaps, double our present death rate.

M. De la Condamine[14] estimated that one tenth of the deaths in France were from smallpox. In 1805, Dr. M. Laborde, in an article entitled "An Account of the Introduction of the Vaccine Disease into the Isles of France and Reunion," says: "I had been a witness of the variolous epidemic which had, in 1792, swept off one-fourth the population of the Isle of France."

Rosen claims that one-tenth of the deaths in Sweden were annually from smallpox.

Two[15] millions of the inhabitants of the Russian empire died of smallpox in a single year. In Russia previous to the discovery of vaccination it was estimated that a seventh part of the population perished by smallpox. See "Cross History of Variolous Epidemic in Norwich, England, 1820."

In Boston, Mass.,[16] in 1721, out of a population numbering 11,000 people there were 5,759 cases of smallpox, of which 844 were fatal. Thus it is shown that more than one-half of the inhabitants had the disease, and one thirteenth died of it. In 1730 there were 4,000 cases, with 200 deaths. In 1752 there were 5,000 cases of smallpox out of a population numbering 15,684, with 539 deaths. In 1764 there were 5,646 cases. In 1776, 5,292 cases. In 1792, 8,346 cases of smallpox.

Sir Gilbert Blaine says: "When there was no vaccination in our navy, one-fifth of all the men enlisted died of smallpox."

Bernouli,[17] writing in 1840, said:

"Great as were the ravages which the plague often caused in Europe, smallpox carried off more victims in the last century than the former disease did in any other. Certainly smallpox is not so deadly as either the plague or cholera. Formerly one-third of the cases among little children terminated fatally, but altogether only one-sixth to one-eighth of the total number of cases. On the other hand the disease (smallpox) had become an endemic contagion in Europe, which no where completely died out, to which nearly all individuals were susceptible, and from which but few escaped before even their tenth year. Of 100 adults only about four or five remained unattacked. It was calculated that two-thirds of all children born succumbed to it. In former times, too, there was greater probability of an individual dying from smallpox. According to the London list of 1708 to 1750 eight out of every one hundred deaths were caused by smallpox. In Berlin the smallpox mortality from 1783 to 1797 was one-twelfth of the total. Those who were carried off by that disease were naturally almost all children."

North American Indians, London, 1841) says: "Thirty millions of white men are now scuffling for the goods and luxuries of life over the bones and ashes of twelve millions of red men, six millions of whom have fallen victims to the smallpox." Again, I would venture the assertion, from books that I have searched and from other evidence, that of the numerous tribes which have already disappeared, and of those that have been traded with, quite to the Rocky Mountains, each one has had this exotic disease in their turn, and in a few months have lost one-half or more of their numbers. Loyd, Translator of Prince Maximilian's Travels in the Interior of North America, in the preface of the work wrote the following description of an epidemic of smallpox among the Indians, and says the general correctness of the details have been confirmed to him by several travelers who had subsequently visited those nations. "The disease first broke out about the 15th of June 1837, in the village of the Mandans, a few miles below the American Fort Leavensworth, from which it spread in all directions with unexampled fury. The character of the disease was as appalling as the rapidity of the propagation. Among the remotest tribes of the Assiniboins from 50 to 100 died daily. The patient, when first seized, complains of dreadful pains in the back and head, and in a few hours he is dead; the body immediately turns black, and swells to thrice its natural size. In vain were hospitals fitted up in Fort Union and the whole stock of medicines exhausted. For many weeks together our workmen did nothing but collect the dead bodies and bury them in large pits; but since the ground is frozen we are obliged to throw them into the river. The ravages of the disorder were the most frightful among the Mandans where it first broke out. That once powerful tribe which, by accumulated disasters, had already been reduced to 1,500 souls, was exterminated, with the exception of 30 persons. Their neighbors, the Big-bellied Indians and the Ricarees, were out on a hunting excursion at the time of the breaking out of the disorder, so that it did not reach them until a month later; yet half the tribe was destroyed on the 1st of October and the disease continued to spread. Very few of those who were attacked recovered their health, but when they saw all their relations buried, and the pestilence still raging with unabated fury among the remainder of their countrymen, life became a burden to them, and they put an end to their wretched existence, either with their knives or muskets, or by precipitating themselves from the summit of the rock near their settlement. The prairie all around is a vast field of death, covered with unburied corpses, and spreading for miles pestilence and infection. The Big bellied Indians and Ricarees, lately amounting to 4,000 souls, were reduced to less than the half. The Assiniboins, 9,000 in number, roaming over a hunting territory to the north of the Missouri as far as the trading posts of the Hudson's Bay Company, are, in the literal sense of the expression, nearly exterminated. They, as well as the Crows and Blackfeet, endeavored to fly in all directions, but the disease everywhere pursued them. At last every feeling of mutual compassion and tenderness seems to have disappeared. Every one avoided the others. Women and children wandered about the prairie seeking for a scanty subsistence. The accounts of the situation of the Blackfeet are awful. The inmates of over 1,000 of their tents are already swept away. They are the bravest and most crafty of all the Indians, dangerous and implacable to their enemies, but faithful and kind to their friends. But very lately we apprehended that a terrible war with them was at hand and that they would unite their whole remaining strength against the whites, but the smallpox cast them down, the brave as well as the feeble, and those who were once seized by this infection never recovered. It is affirmed that several bands of warriors who were on their march to attack the fort, all perished by the way, so that not one survived to convey the intelligence to their tribe. Thus in the course of a few weeks, their strength and their courage were broken, and nothing was to be heard but the frightful wailings of death in their camp. Every thought of war was dispelled and the few that are left are as humble as famished dogs. No language can picture the scene of desolation which the country presents. In whatever way we go we see nothing but melancholy wrecks of human life. The tents are still standing on every hill, but no rising smoke announces the presence of human beings, and no sound but the croaking of ravens and the howling of the wolf interrupt the fearful silence. The above accounts do not complete the terrible intelligence we receive. There is scarcely a doubt that the pestilence will spread to the tribes in and beyond the Rocky Mountains, as well as to the Indians in the direction of Santa Fé and Mexico. It seems to be irrevocably written in the book of fate, that the race of red men shall be wholly extirpated in the land in which they ruled, the undisputed masters, till the rapacity of the whites brought to their shores the murderous firearms, the enervating ardent spirits, and the all-destructive pestilence of the smallpox. According to the most recent accounts, the number of Indians who have been swept away by the smallpox, on the western frontiers of the United States amounts to more than 60,000."

In Drake's Indians of North America (page 677-8) he says: "Scenes of wretchedness have been recorded in our early pages, occasioned by malignant diseases, among Indians of our own land. We are to relate the doings of death on a broader scale, in the regions of the upper Missouri. In October last (1837) the smallpox was still raging over that vast country. Up to the first of that month, the Mandans were reduced from 1,600 to 31 souls; the Minetarees from 1,000 to 500, and they were still dying fast. The Ricarees, who had recently joined them, were hunting by themselves, when the disease was raging among their friends, and were not seized by the horrible malady until a month later. They numbered 3,000, and half of them were in a few days swept away, and hundreds of the survivors were killing themselves in despair, some with their own spears and other instruments of war, and some by casting themselves down high precipices along the Missouri. The Blackfeet had known no such foe before it reached the Rocky Mountains and swept away the people in a thousand lodges.

[11] Macauley's History of England.

[12] Public Health, Dr. Guy.

[13] John Simon, loc. cit.

[14] See English Edition De la Condamine on smallpox. Translated by Dr. Maty, 1755. "De la Condamine estimated that smallpox destroyed, maimed or disfigured one-fourth part of mankind." Williams (Elements of Medicine 1. p. 202) quotes the French Minister of the Interior as estimating (Report on Vaccination 1811) the former annual mortality by smallpox to have been 150,000 persons. Other writers, Ring among them, state the number to have been less than stated by De la Condamine and Williams, though enormous in amount.

[15] Godfrey, Dr. Edward Jenner's discovery of Vaccination.

[16] Report of a committee appointed by the United States Sanitary Commission (1863) to prepare a paper on the Value of Vaccination in Armies.

[17] Page 10. Minutes of Evidence Royal Vaccination Commission of Great Britain. Published 1890.

Proposition 2.

Smallpox in a population unprotected by vaccinnation is as generally prevalent and fatal disease at the present day as in the pre-vaccinal period.

In 1872-73, in a few months, in the town of Brunei,[18] in Borneo, 4,000 out of a total population of 35,000 died of smallpox.

On the Gold Coast,[19] in 1871, smallpox is described by Acting Administrator Salmon as deciminating the population. He says: "Nothing but the active interference of the local government could have saved the people from annihilation."

At Ceara, in Brazil, smallpox killed 40,000 out of a total population of 70,000. These facts were reported by Mr. Ashbury, Member of Parliament for Brighton, who visited the spot about the close of the epidemic.

At Tamatave, Madagascar, according to the report of the United States Consul, smallpox in 1877 destroyed 800 citizens within two months. The disease attacked all who had not had smallpox or been vaccinated. The disease was confined almost exclusively to the natives, the foreign residents having been previously vaccinated.

Dr. Makena describes an epidemic of smallpox in the Argentine Confederation from 1846-48 as "sweeping with the wings of death over that enormous tract of country which extends from the seaboard of the Atlantic on the East to the Corderilla of the Andes on the West. Throughout this whole space it may be said that hardly a single house or ranch escaped its fearful visitation, wherever the current of human intercourse reached, and such was its fatality that I have known thirty children taken in one morning from the houses of one quadra of a street 150 yards long. Whole families were swept away, and, in short, the terrors of the plagues of former times were, if not surpassed, fully equaled by this horrible scourge. But that which struck me as most truly remarkable was that not one of those English people who had been vaccinated at home, and who had the large, deep, oval thimble-mark on one or both arms, ever took the disease."

In California, according to the reports of Doctors Logan,[20] Gibbons and Hatch,[21] who personally witnessed the disease, smallpox prevailed to a greater extent than was ever before known, and with a virulence and fatality which has not been surpassed. It was, if possible, more severe in private practice than in hospital. Dr. Hatch, in Sacramento, reports 1 death in 3.2 in hospitals and 1 in 2.9 in private practice, making the rates for deaths for both 1 in 3. This agrees with the observations of Dr. Logan, who reports 1 death to every 3 in Sacramento, and 1 to every 2.5 in San Francisco. When we bear in mind that the usual death rate for smallpox, before the introduction of vaccination, did not exceed 1 in 5 or 6, we will agree with Dr. Logan, "this fatality is almost unprecedented in the annals of this disease."

The reports of the Indians were brought by traders and do not furnish data upon which to make a statistic statement, nevertheless all agree in representing the manifestation and ravages of the disease as fearful. In many instances whole encampments were attacked and large numbers were swept off.

In Cincinnati, the epidemic, though not so virulent as in California, was the severest and most extended of any former visitation. During the months of November, December, January and February, 1868-69, the Cincinnati Board of Health had 2,674 cases of smallpox reported to it, and 511 deaths, making 1 death to every 5¼. This is deemed by many as a higher death rate than actually occurred, as it is claimed that some physicians did not report their cases of smallpox to the health officer. One thousand additional cases will certainly cover all unreported ones, and would make the death rate about 1 in 7.

How can we account for the extreme severity of the epidemic at these three points?

In California, Dr. Logan, physician to the Smallpox Hospital, Sacramento, says: "The primary and chief cause is inattention to vaccination. The large proportion of deaths that have occurred, especially in children, and in a certain class of the floating population of California, particularly the Mexicans, South American or Californian nativity, shows that the extensive prevalence of smallpox in our midst is not due to the failure of the anti-variolus power claimed for vaccination but to the neglect or absence of its protecting influence."

From far-off India[22] comes a most convincing argument, which I quote from a medical journal: "Although the epidemic of smallpox visited the northwestern provinces of India in a fearful manner, causing 58,800 deaths in the single year of 1878 all attempts at introducing vaccination as a protective measure were resisted by the superstitious natives. They looked upon smallpox as a visitation from a deity, called by them Sitta, whose anger had to be appeased with special sacrifices and plagues. The faithful Hindoos considered it an act of impiety to still further incite the wrath of the deity by the administration of unholy medicines or vaccination. In spite of all this, however, vaccination, although under peculiar circumstances, was gradually introduced among the natives. The Thakers, a tribe that still practices infanticide to a horrible extent, first allowed their female children to be vaccinated, being convinced of its fatal termination, and hoping thereby to get rid of this superfluous progeny. All the sons, however, were carefully guarded against vaccination. Smallpox broke out in four of their villages a short time afterward, which carried off nearly all the boys while the girls escaped the disease. This unlooked for termination induced the natives to resort to the opposite practice, compelling the boys to be vaccinated while the girls were left unprotected. Beside this, a large number of cases were observed where children were concealed by their families from the vaccinators; in almost all instances these died, while those vaccinated escaped smallpox." Even one such remarkable and unanswerable illustration as this should convince every one of the utility of vaccination, but I have only commenced my arguments and will continue to give you more interesting ones.

Mr. Alexander Wheeler, Darlington, England, an ardent anti-vaccinationist, in a paper entitled "Vaccination in the Light of History," London, 1878, says: "In India smallpox carried off 101,397 people in 1875."

Hirsch, in, his work, "Handbuch der Historisch-geographischen Pathologie," says that between 1866 and 1869 smallpox killed 140,000 natives in Bombay and Bengal. In the whole of India, 1873 and 1874, 500,000 inhabitants died of the disease. (See Second Report Royal Vaccination Commission of Great Britain, 1890, p. 10.)

To-day the terrors of smallpox are almost forgotten; only occasionally the disease attacks a population unprotected by vaccination. In 1884, in San Salvador[23] smallpox carried off nearly one-fiftieth part of the population.

Proposition 3.

In every nation upon earth where vaccination of the populace has been generally resorted to a marked decrease in the smallpox death rate has invariably followed.

While statistic data are not available from all countries using vaccination as a weapon of defense against smallpox, the great English sanitarian, John Simon, with the assistance of Mr. Hailie, has prepared a table which conclusively demonstrates the great and positive benefits in controlling smallpox. This table shows two varieties of facts: "1, how many persons in each million of population died annually of smallpox before the use of vaccination; and, 2, how many persons in each

Approximate average annual death rate by smallpox per 1,000,000 of living population.

Terms of years respecting which particulars are given.	Territory.	Before introduction of vaccination.	After introduction of vaccination.
1777–1806 and 1807–1850.	Austria, Lower	2,484	340
1777–1806 and 1807–1850.	Austria, Upper, and Salzburg	1,421	501
1777–1806 and 1807–1850.	Styria	1,052	446
1777–1806 and 1807–1850.	Illyria	518	244
1777–1806 and 1806–1850.	Trieste	14,046	182
1777–1806 and 1807–1850.	Tyrol and Vorarlberg	911	170
1777–1806 and 1807–1850.	Bohemia	2,174	215
1777–1806 and 1807–1850.	Moravia	5,402	255
1777–1806 and 1807–1850.	Silesia (Austrian)	5,812	198
1777–1806 and 1807–1850.	Galicia	1,194	676
1787–1806 and 1807–1850.	Bukswina	3,527	516
1817–1850.	Dalmatia	. . .	86
1817–1850.	Lombardy	. . .	87
1817–1850.	Venice	. . .	70
1831–1850.	Military frontier	. . .	288
1776–1780 and 1810–1850.	Prussia (Eastern Provinces)	3,321	556
1780 and 1810–1850.	Prussia (Western Provinces)	2,272	356
1780 and 1816–1850.	Posen	1,911	743
1776–1780 and 1810–1850.	Brandenburg	2,181	181
1776–1780 and 1816–1850.	Westphalia	2,643	114
1776–1780 and 1816–1890.	Rhenish Provinces	908	90
1781–1805 and 1810–1850.	Berlin	3,422	176
1776–1780 and 1816–1850.	Saxony (Prussian)	719	170
1780 and 1810–1850.	Pomerania	1,744	130
1810–1850.	Silesia (Prussian)	. . .	310
1774–1801 and 1810–1850.	Sweden	2,050	158
1751–1800 and 1801–1850.	Copenhagen	3,128	286

[18] The Truth about Vaccination by Ernest Hart, London, 1880.
[19] Hart, loc. cit.
[20] Medical Review of the year 1868 in California, by T. M. Logan, M.D., Physician to Smallpox Hospital, Sacramento.
[21] Report on the Epidemic of California, in 1868, Transactions of the American Medical Association, vol. 20, page 513.
[22] Vaccination. Joseph Edwards, M.D., p. 27-8, Philadelphia, Pa., 1882.
[23] U.S. Consul Murphy. Loc. cit. Berlin.

million of population have annually died of smallpox since, the use of vaccination." The author draws the conclusion, as the reader may also do, between the case of Sweden in the twenty-eight years before vaccination and the forty years afterward: "During the earlier period there used to die of smallpox, out of each million of the Swedish population, 2,050 victims annually; during the latter period, out of each million of population, the smallpox deaths have annually averaged 158." "Or, taking to metropolitan cities, you find that in Copenhagen, for the next half century, 1751–1800, the smallpox death rate was 3,128, but for the next half century only 286; and still better in Berlin, where for twenty-four years preceding the general use of vaccination, the smallpox death rate had been 3,422, for forty years subsequently it has been only 176. In other words, the fatality of smallpox in Copenhagen is but an eleventh of what it was; in Sweden, a little over a thirteenth; in Berlin and large parts of Austria but a twentieth." These statistics show that the adoption of vaccination has been followed by a reduction of the smallpox mortality to a tenth and a twentieth of its former magnitude.

Dr. William Ogle, superintendent of statistics in office of Registrar General, in first report of Royal Vaccination Commission, 1889, in comparing the mortality from smallpox in our day with that of the seventeenth and eighteenth centuries, said:

"I have taken as a basis for comparison the ten years from 1871 to 1880, which are the years which include the great outbreak in London in 1870–71, so that those years represent a time when smallpox was particularly abundant in London. Taking those ten years, I find that in round numbers, the smallpox deaths were 20 in 1,000, from all causes. I then go back 100 years to the corresponding decennium in the eighteenth century, 1771–1780, and I find that the smallpox deaths were then 97 in 1,000. Then going back another hundred years, 1671–80, I find that the proportion was 66 in 1,000; so that in the present century smallpox as measured by its proportion of deaths to deaths from all causes, has been from three to five times less common than it was in those previous times; and it is plain that if the death rate of the eighteenth century and the death rate of the seventeenth century was higher than it is now, smallpox must have been very much more prevalent, because a large proportion of a larger number of deaths occurred from it. Of course it is only an assumption that the death rate was higher in the seventeenth and eighteenth centuries than it is now."

Dr. Hopkirk presented the following table to the Royal Vaccination Commission:

TABLE A.*—Table showing for the city of Berlin the number of inhabitants, deaths from all causes and the deaths from smallpox in the years 1758 to 1774 and 1782 to 1872, and in particular for each of the years of smallpox epidemics. (Zeitschrift des Königl. Preuss. Stat. Bureau. Jahrgang 12, 1872; Art. "Die Pocken-Epidemie in Berlin, 1870-72," by Dr. Guttstadt.)

Quinquennial average for.	Inhabitants.	Total number of deaths.	Percent. of deaths to inhabitants.	Deaths from smallpox.	Percentage of deaths from smallpox to total number of deaths.
1758–1762	95,671	4,726	4.93	389	8.23
1763–1767	122,008	4,033	3.31	444	11.00
1768–1772	130,186	5,591	4.29	383	6.85
1773–1774					
1782–1784	133,392	4,865	3.65	443	9.11
1785–1789	135,400	5,214	3.85	487	9.34
1790–1794	145,000	5,263	3.63	449	8.53
1795–1799	165,612	5,984	3.61	396	6.52
1800–1804	177,225	6,192	3.49	463	7.48
1805–1809	152,014	7,323	4.82	466	6.36
Influence of Vaccination.					
1810–1814	165,000	5,525	3.35	51	0.74
1815–1819	198,093	5,974	3.02	80	1.34
1820–1824	210,000	5,930	2.82	9	0.15
1825–1829	230,000	6,686	2.91	31	0.46
1830–1834	255,000	8,622	3.40	48	0.55
1835–1839	285,000	8,566	3.01	52	0.60
1840–1844	325,000	9,062	2.79	44	0.49
1845–1849	390,000	11,070	2.84	7	0.06
1850–1854	408,000	11,270	2.76	19	0.14
1855–1859	450,000	12,736	2.83	83	0.00
1860–1864	590,000	16,276	2.76	176	1.08
1865–1869	690,000	23,303	3.38	182	0.78
1870	....	26,594	3.02	171	0.64
Years of Smallpox Epidemic.					
1759	94,433 (Garison wanting.)	4,496	5.26	600	13.20
1766	125,878	4,652	3.60	1,060	22.08
1770	133,520	5,123	3.83	987	19.26
1786	147,338	5,077	3.44	1,077	21.21
1789	118,717 (Garison wanting.)	5,990	5.00	911	15.25
1801	176,709	7,681	4.34	1,626	21.17
1864	632,749	17,848	2.81	617	3.45
1871	826,341	32,362	3.92	5,084	15.70
1872	....	28,763	3.48	1,100	3.82

*See Appendix II, p. 231, Second Report Royal Vaccination Commission of Great Britain, 1890. By Dr. A. F. Hopkirk (Jena).

John Simon presented the following table (see Royal Commission on Vaccination, first report, 1889, page 88).

General and Differential Annual Death Rates in London per 100,000 living, at seven different periods during the 226 years, 1629–1854.

Causes of Death.	Bill of Mortality.						Registration returns. (Dr. Guy.)
	1629–35	1660–79	1728–57	1771–80	1801–10	1831–35	1840–54
Smallpox	180	417	426	502	204	83	40
Measles	16	47	37	48	94	86	58
Consumption	1,021	1,255	905	1,121	716	567	323
Scrofula	14	19	5	5	?	3	12
Dropsy	146	349	218	225	131	133	59

What does the ratio of epidemics teach us? Read it. The report of the Epidemiological Society of London says: First, during ninety-one years, previous to inoculation, there were sixty-five distinct and well-marked epidemics, which is a ratio of 71.4 epidemics in one hundred years; second, during sixty-three years in which inoculation was practiced, and that to a great extent, there were fifty-three distinct and well marked epidemics, which is a ratio of eighty-four epidemics in one hundred years; third, during the last fifty years, in which vaccination has been practiced and inoculation declared illegal, there have been twelve epidemics of smallpox, which is a ratio of twenty-four epidemics in one hundred years.

To go back to Jenner's day we find the following testimony from his papers: "From 1762 to 1792 the number of persons that died of smallpox in the Danish dominions amounted to 9,728. About the year 1802 vaccination was first introduced, and the practice became general but not universal; however, fifty-eight persons died of smallpox in the year 1810. Vaccination, by order of the king, was now universally adopted and smallpox inoculation prohibited, and from the year 1810 to the year 1819 not a single case of smallpox has occurred. From Bombay, I learn the smallpox is there completely subdued, not a single case having occurred for the last two years."

Drs. Seaton and Buchanan, in 1863, examined more than fifty thousand children in the national schools and workhouses in England to attempt to determine what proportion of them were unvaccinated, what proportion had formerly been vaccinated, and the number among those vaccinated who had contracted smallpox since vaccination.

Classification of Children.	Number examined of each class.	Number in each class that had traces of smallpox.	Proportion having traces of smallpox per 1,000 children in each class respectively.
1. Without any mark of vaccination	2,837	1,010	360
2. With doubtful mark of vaccination	508	30	59
3. With mark or marks of vaccination	49,570	88	1.78

Lord Jeffrey, in 1807, at that time editor of the *Edinburgh Review*, a man most thoroughly skilled in the principles of searching and rigorous applications of the rules of evidence, highly endorses the value of vaccination, and says of Jenner's claim, "not until he had vaccinated some hundred children, and put them, at different intervals, to the test of inoculation for smallpox without effect, that he ventured to publish his discovery, in the year 1798, in a treatise, followed up the year after by a still longer list of such experiments and observations." In the same article he adds, "When the practice of vaccination was discussed and confidently recommended, in

1800, by all the eminent practitioners in London, this was done only after full consideration of its efficacy, as compared to inoculation for smallpox; that Dr. Woodville in particular, physician to the smallpox hospital, then stated that within the last six months he had vaccinated there 7,500 persons, the half of whom had been since inoculated with smallpox matter without the slightest effect being produced in any instance."

The report of the Faculty of Medicine at Prague to the Minister of the Interior, requesting information for the Government of Great Britain relative to the results of vaccination, offers one of the most interesting tables of any known to me. From this vast storehouse of facts the following summary is taken: From 1796 to 1802 inclusive, the average annual population observed was 3,039,722; total average number of deaths annually from all causes, 94,955; total deaths annually from smallpox, 7,673; showing one death from smallpox to every 396 of the population, and the deaths from smallpox to the total number of deaths was one in 12½. From 1832 to 1855 inclusive, during twenty-four years subsequent to introduction of vaccination, with an average population of 4,248,155, total deaths annually were on an average 131,412. The average number of deaths annually from smallpox was 287,724; showing deaths from smallpox to population to be 1 in 14,741; deaths from smallpox to total number of deaths, 1 in 457. Among an average annual population of 143,122 persons vaccinated and 4,291 unvaccinated, the cases of smallpox annually existing were 389 among the vaccinated, and 355 among the unvaccinated population, *i.e.*, one case of smallpox occurred among 367 vaccinated; one case of smallpox occurred among 12 unvaccinated. These tables further show the following facts: One fatal case of smallpox occurs among 7,166 vaccinated; one fatal case of smallpox occurs among 40 unvaccinated. In the Grand Duchy of Baden similar fruits have followed vaccination. Reliable statistics show that for a long number of years of compulsory vaccination with an average annual population of 1,200,000, only 100 cases of smallpox occur each year, and only 13 of this vast population have died each year of smallpox.

In Great Britain from 1750 to 1800, of every 1,000 deaths, 96 were from smallpox. From 1800 to 1850, of every 1,000 deaths, 35 were from smallpox. During the latter period the population was quite generally, but by no means universally, vaccinated.

In the German States, where more attention was paid to vaccination, the following were the results obtained: Before vaccination of population, deaths from smallpox amounted to 66.5 per 1,000; subsequent to vaccination, 7.66 per 1,000.

Dr. Marson of England, from the records of his great hospital experience, shows the merits of vaccination: "The smallpox death risks of no vaccination are to the death risks of the very worst vaccination as three to one; to the death risks of the best vaccination as seventy to one."

From an experience of twenty-one years in Bohemia among four millions of population, the testimony of that country most strikingly illustrates the value of vaccination. Among the vaccinated population contracting smallpox the death rate was but 5.1 per cent; the death rate of the unvaccinated was 29.8 per cent.

The most reliable statistics, and at the same time the fairest, upon the value of vaccination, are to be found in the records of the army, for here alone is it possible to compel thorough vaccination of the entire population. Infringement of personal liberty, so dearly availed of as the shibboleth of the civilian, is treated with merited contempt in the army when it contravenes the rights of others. Vaccination having been decided an individual and collective benefit, the soldier has no choice in the matter; he is compelled to submit to it. In thus protecting himself he at the same time benefits his comrades. To the honor of the surgeons of the army and navy be it said they are able, fearless and conscientious sanitarians, and in no other department have the rich results of sanitary science shown forth so conspicuously. Sir Gilbert Blaine says prior to vaccination, "Smallpox was one of the greatest embarrassments to the operations of armies." Let us see how it was after vaccination.

By reference to the statistics of sickness and mortality in the army of Great Britain for the twenty years from 1817 to 1836 inclusive, the following data are to be found. (Every soldier is vaccinated upon entering the army.)

In the dragoon regiments and guards, with an aggregate of 44,611 men, with a total mortality of 637, but three deaths occurred from smallpox.

At Gibraltar, with an aggregate of 60,000 troops, with a total mortality of 1,291, only one death was caused from smallpox.

Among the British and white troops in the West Indies, with an aggregate strength of 86,000, and a total mortality of 6,803; and among the black troops, numbering 40,000, with a mortality of 1,645, not one fatal case of smallpox occurred, although during this period several epidemics of smallpox decimated the islands.

Among the troops at Bermuda, Nova Scotia, Cape of Good Hope and Mauritius, for twenty years, there was not one death from smallpox.

In Western Africa, while smallpox was ravaging the inhabitants unvaccinated, not a case of smallpox occurred among the white soldiers who had been vaccinated.

From 1818 to 1836 inclusive, in an army of 40,000 aggregate, British troops at Malta, while smallpox was playing sad havoc among the unvaccinated inhabitants, in repeated epidemics, there were only two deaths from this disease in the vaccinated army.

During the same period in Ceylon, among the white soldiers, with a total mortality of 3,000, there were only four deaths, with eight cases, from smallpox, notwithstanding repeated epidemics of the disease among the natives.

In the British troops serving in the United Kingdom from 1859 to 1864 inclusive, the following were the results of vaccination: Total number troops, 473,483; cases of smallpox, 664; deaths from smallpox, 40; showing the ratio per 10,000 of strength to be: Cases of smallpox, .14; deaths from smallpox, 0.84.

In the British navy—home force—for the same period of time, 1859 to 1864 inclusive, the following data are furnished: Total mean strength, 127,660; cases of smallpox, 416; deaths, 29; ratio per 10,000 of strength: cases, 33; deaths, 2.3.

Since 1803 to 1863, among the thousands of vaccinated children admitted into the Royal Military Asylum of England, there has not been a case of fatal smallpox. This testimony is the more striking since the records show that during that time four deaths occurred among those who had previously had smallpox.

Proposition 4.

As vaccination became more general smallpox decreased in extent and fatality.

Dr. Ogle reviews the statistics of smallpox in England and Wales from 1838 to 1887 inclusive, accurately kept in the office of the registrar general—the civil register having been commenced in 1837. The registrar general's returns show the smallpox death rate and the smallpox deaths in proportion to population for each year during the period 1838 to 1887, except the four years 1843–6, during which four years no returns were tabulated in the registrar general's office. Dr. Ogle then presented the table marked A hereto appended. This table shows that the smallpox deaths in 1838 reached 1,064 per 1,000,000, and that only one year in the forty-nine years (1871) did the smallpox deaths ever approach that of 1838. He then divides the deaths in these forty-six years into three periods. First, 1838 to 1858, inclusive, in which vaccination was nominally compulsory, but no effectual means of enforcing it, practically optional. In this period the smallpox death rate was 408 per 1,000,000 population. The second period, 1859 to 1871 inclusive, in which vaccination laws were more efficiently enforced (though not thoroughly carried out) the smallpox death rate was 223 per 1,000,000. The third period, 1872 to 1887, when compulsory vaccination was thoroughly enforced, the smallpox death rate per 1,000,000 population was 114; thus demonstrating a marked progressive decrease in the smallpox death rate corresponding in time with the changes in the vaccination laws. The decline from 1838 to 1887 was about 7.2 per cent.

ENGLAND AND WALES.

TABLE A.—Deaths from smallpox per 1,000,000 living, 1838–42 and 1847–87.

Year.	Deaths.	Year.	Deaths.	Year.	Deaths.	Year.	Deaths.
1838	1,064	1851	389	1864	367	1877	178
1839	589	1852	401	1865	303	1878	79
1840	661	1853	171	1866	141	1879	25
1841	400	1854	151	1867	116	1880	29
1842	168	1855	134	1868	93	1881	124
1843	. . . . .	1856	119	1869	70	1882	54
1844	. . . . .	1857	204	1870	116	1883	39
1845	. . . . .	1858	332	1871	1,015	1884	87
1846	. . . . .	1859	195	1872	824	1885	107
1847	246	1860	138	1873	101	1886	13
1848	397	1861	66	1874	91	1887	21
1849	264	1862	80	1875	40	. . . . .	. . . . .
1850	262	1863	289	1876	103	. . . . .	. . . . .

N. B.—The above figures include deaths from chickenpox.

Dr. Ogle next considers the question of the possibility of this decreased smallpox death rate being attributable to improved sanitation rather than vaccination. He submitted the following table:

TABLE B.—Mean annual deaths from smallpox at successive life periods, per 1,000,000 living at each such life period, 1847-53, 1854-71 and 1872-87.

Period.	All ages.	0-5	5-10	10-15	15-25	25-45	45 and upward.
1. Vaccination optional, 1847-53	305	1,617	337	94	109	66	22
2. Vaccination obligatory, but not efficiently enforced, 1854-71	223	817	243	88	163	131	52
3. Vaccination obligatory, but more efficiently enforced by vaccination officers, 1872-87	114	242	120	69	122	107	47

In this table the period of optional vaccination begins with 1847, not with 1838, because the deaths were not abstracted in combination with ages until 1847.

He, Dr. Ogle, then points out the fact that if the decreased death rate from smallpox had been attributable to improved sanitary conditions under which the population lived that all ages would have shared in the benefits. But the table just refered to demonstrates that with the marked decline in the smallpox death rate (72 per cent.) that no such thing resulted. The table demonstrates: 1. That during the first five years of life the lessened smallpox mortality was 85 per cent. 2. In children between the ages of 10 and 15 years it declined 27 per cent. At every age period subsequent to 15 years the mortality actually increased. 3. From 15 to 25 years the smallpox death rate increased. 4. From 25 to 45 years of age the smallpox death rate increased.

Again to show that improved sanitation did not produce the result claimed for it by antivaccinists, the record shows that the decrease in the general death rate during the period in question was but 9 per cent. while the decreased smallpox death rate reached 72 per cent. The comparative decrease in zymotic diseases was as follows: Measles, 9 per cent.; whooping cough, 1 per cent.; smallpox, 72 per cent.

To further demonstrate Proposition 4, I cite the following tables. A glance at these tables conclusively demonstrates the vastly decreased smallpox death rate of those countries rigidly enforcing vaccination over those wherein vaccination is optional, or nominally compulsory.

Smallpox in Europe, 1879-1885.*

Countries.	Period.	Population.	Deaths from smallpox.	Ratio per 10,000.
Italy (284 chief places)	1881-84	7,149,256	4,673	1.63
England and Wales	1880-84	26,413,861	8,823	0.67
Scotland	1880-83	3,745,485	43	0.03
Scotland (8 cities)	1881-84	1,253.087	26	0.05
Ireland	1880-85	5,174,836	628	0.20
German Empire (148 cities)	1881-84	8.790,783	793	0.23
Prussia	1880-83	27,807,012	3,254	0.29
Austria	1879-83	22.134,454	77.988	7.05
Austria (15 chief cities)	1879-82	1,543,656	5,205	8.43
Switzerland (12-15 cantons)	1880-83	1,749,601	238	0.33
Switzerland (17 cities)	1881-83	439,843	105	0.80
Belgium	1880-84	5.655,197	11.577	4.09
Belgium (70 cities)	1880-84	1,731,269	2,182	3.15
Holland	1881-84	4,225,065	963	0.57
Sweden	1880-83	4,579.115	758	0.41
Sweden (89 cities)	1880-82	690,309	143	0.69
Denmark (chief cities)	1880-82	564 914	20	0.12
Spain	1881-84	16,858,721	57,032	8.46
Spain (70 cities)	1881-84	2,828 977	14.793	13.07
European Russia	1882	78,590,594	22,236	2.96

* Buck's Ref. Handbook, p. 526, Vol. vii.

Mortality from smallpox per 1,000,000 living in.†

	Countries without compulsory vaccination.			Countries with compulsory vaccination.		
	Holland.	Prussia.	Austria.	Bavaria.	Sweden.	Scotland.
1865					324	132
1866	406				292	62
1867	154			251	253	81
1868	40	181		190	342	5
1869	14	191		101	354	19
1870	196	183		97	183	34
1871	4,355	2,309		1,043	78	428
1872	1,021	2,621		612	81	720
1873	95	356	3,173	176	261	328
1874		95	1,754	47	936	360
1875		36		17	461	22
1876					136	
1877					80	

† See Second Report Royal Vaccination Commission, page 238.

Table showing, for the years 1871-74, the mortality from smallpox in Prussia per 100,000 inhabitants. (Lotz, "Pocken und Vaccination," p. 88, after Guttstadt.)

In the old Provinces without compulsory vaccination.	1871	1872	1873	1874
1. Prussia	224	503	80	18
2. Brandenburg	340	282	24	5
3. Pomerania	237	249	15	3
4. Posen	455	682	128	24
5. Silesia	214	321	53	21
6. Saxony	277	176	28	3
7. Westphalia	255	209	14	2
8. Rhineland and Hohenzollern	264	106	5	9
In the new Provinces with compulsory vaccination.	**1871**	**1872**	**1873**	**1874**
9. Schleswig Holstein	180	46	1	0.7
10. Hanover	77	81	13	3
11. Hesse-Nassau	93	45	9	4

I am indebted to Surgeon-General Sternberg, U. S. Army, for a translated copy of an article from the *Hanover Courier* relative to the effect of compulsory vaccination in Europe, furnished by the U. S. Consul General at Berlin, 1893, to the Secretary of State, U. S. From this article I make the following extracts:

The European States in regard to their position in connection with the question of vaccination may be divided into three categories:

1. Those—and these are the majority—which have only the facultative vaccination, but which warmly recommend and urge it: France, Austria, Russia, Belgium, Spain, etc.

2. States with obligatory vaccination, but without obligatory revaccination, as England, Sweden, Denmark.

3. In the third category stands Germany, which is the only state in which—since the imperial vaccination law of 1875 went into operation—vaccination and revaccination are obligatory.

Picking out a state from the second category we can clearly see the blessing of vaccination in the case of Sweden. There died there of smallpox annually from every 100,000 inhabitants:

a. Before the introduction of vaccination from 1774-1800, 165.82.

b. After the introduction of facultative vaccination from 1801-1815, 55.60.

c. After the introduction of obligatory vaccination from 1816-1883, 18.20.

The result in Prussia has been far more favorable since the introduction of the imperial vaccination law. In the decade 1875-85 there died of smallpox annually in Prussia from every 100,000 inhabitants 2.23, in England with obligatory vaccination three times as many, in Austria where there is no compulsion twenty-seven times as many, while before 1875 there were as many smallpox deaths in Prussia as in Austria.

In France with facultative vaccination there died in 1886 and 1887, in Paris alone, more persons from smallpox than in all Germany, namely, 1886, 218 in Paris, 193 in Germany; in 1887, 389 in Paris, 108 (less than one-third as many) in Germany.

The following figures speak for other years. From 100,000 inhabitants there died of smallpox in

	Germany.	England.	Belgium.	Austria.
1886	0.4	1.0	20.5	38.1
1887	0.35	1.8	10.2	41.2
1888	0.2	3.6	14.3	. .

In Spain with 12,000,000 inhabitants, in 1888 there were 14,378 smallpox deaths or 120 to 100,000; in 1889, 8,472 smallpox deaths or 70 to 100,000.

The difference is shown still more clearly and conclusively by comparing districts bordering upon one another. In 1889, of smallpox deaths there were in Bohemia 3,329, or 60 to 100,000, in Moravia 1,100 or about 52 to 100,000; while in the adjacent parts of Germany the numbers were:

Prussian Silesia . . . . . 35 = 0.85
Kingdom of Saxony . . . . . 7 = 0.29 } per 100,000
The Bavarian frontier districts. 22 = 0.79

Independent of the imperial vaccination law are the vaccination regulations in the German army. In Prussia ever since 1834 recruit vaccination has been the general practice. The result is clearly to be seen. From 1825 to 1834, that is before the introduction of recruit vaccination, the average smallpox death rate was 364 to 100,000. It was greater than that of the civil population, which on the average was 268 to 100,000.

With the introduction of recruit vaccination the smallpox death rate at once decreased considerably and permanently leaving out of consideration the war years, it has only once since reached the height of 65 to 100,000, being much lower than the death rate of the civil population, which up to the

time of the introduction of the imperial vaccination law remained unchanged, about 268 to 100,000.

The vaccination regulations worked admirably in the war of 1870-71; in spite of the very great danger of contagion, in an army averaging 600,000 men there were:

Smallpox cases . . . . . 2,746 = 465 } per 100,000
Smallpox deaths . . . . . 146 = 24.7 }

For the entire German army this rate was more unfavorable owing to the fact that individual contingents had new and, therefore, not fully perfect vaccination regulations. In the entire army of 788,200 there were:

4,835 smallpox cases . . . . . = 613.4 } per 100,000
278 smallpox deaths. . . . . = 35.3 }

On the other hand the losses in the French army from smallpox were much greater. It is impossible to fix exactly the number of deaths, but it is supposed that 23,469 is the correct number. The figures given for single corps do not contradict this estimate.

For the garrison of Paris (170,000 men) the number of cases from October 1870 to March 1871 was reported at 11,500, the deaths at 1,600. The small garrison of Langres (14,629 men) lost more from smallpox between September 1870 and March 1871 than the entire German army (788,213 men) in twelve months; namely 334 against 278.

Likewise in times of peace the advantage over the French and Austrian armies, due to protective vaccination, which is enjoyed by the Prussian amy (inclusive of the Twelfth Royal Saxon and Thirteenth Royal Württemberg army corps) is apparent. In the fifteen years 1873-88 there were in the Prussian army only 300 cases of smallpox (including doubtful cases) and 3 deaths, while in the French army there were 7,807 cases and 698 deaths, and in the Austrian army 16,974 cases and 1,034 deaths. These two armies, therefore, had respectively two and three and one-half times as many smallpox deaths as there were cases of smallpox in the German army. In 1887 Austria introduced recruit vaccination and at once the number of smallpox cases and deaths became smaller than ever before.

(To be continued.)

REMARKS UPON MEDICAL EXPERT TESTIMONY AND PROPOSED RELATIVE LEGISLATION.

Read in the Section on Neurology and Medical Jurisprudence at the Forty seventh Annual Meeting of the American Medical Association held at Atlanta, Ga., May 5-8, 1896.

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The amount of earnestly thoughtful consideration which has in recent years been given to the subject of medical expert testimony, both by the legal and medical professions, may be said to be enormous, and yet the great desideratum—its just and equitable regulation—is far from being accomplished.

The remarkable divergence of individual opinion as to the feasibility of the various plans proposed; the complexity of interests involved; the multiplicity of phases in which the subject in general may be made to appear in practical application, together with the necessary constant observance of certain sovereign and inalienable rights which are, under our governmental system, guaranteed to the meanest and the highest in like degree, all combine to make of this veritable *quaestio vexata* a problem so difficult of solution as almost to suggest an utter impossibility as to its final and satisfactory adjustment.

It seems indisputable that so long as testimony as to facts and what is commonly termed opinion testimony, differ so widely and yet merge so closely, and so long as the laws and the courts do not recognize the fact that doctors in general are not experts indiscriminately, and that no witness is qualified to express an authoritative opinion upon any subject who does not possess special knowledge derived from special study and experience, just so long will this great question continue to be the *bête noire* of our profession.

It is universally conceded, and justly so from the medical standpoint, that the present method of taking testimony requiring expert opinion is defective in the extreme, and in many instances in practice absurd and ridiculous; attorneys, for example, taking advantage of the circumstances, frequently select and summon to the stand to pose in the attitude of medical experts upon the gravest and most momentous scientific questions, members of the profession whose only *special* qualification consists in having agreed with their employer to express a satisfactory reply to the hypothetic statement which supposedly covers the facts in the case at bar, or under consideration.

An instance in point in the writer's observation is amusing—the medical witness, when examined upon topics requiring expert knowledge of the important subject of antisepsis in the treatment of wounds, indignantly scouted the idea of making use of corrosive sublimate in his practice, but triumphantly declared that he did use the bichlorid of mercury instead!

And yet, with the existing confusion in the matter of differentiation between the expert and the non-expert, the courts would charge due consideration by the jury of the opinions and declarations of such a witness upon equal footing with those of the most accomplished specialist.

Herein lies the greatest fault in the prevailing system, namely, the absence of determining rules whereby the special qualification of the witness in a particular branch of medical science may be known and established beforehand; and the unlimited privilege which in the usage of courts is possessed by attorneys and counsel to select for themselves, regardless of qualification, the witnesses whom they are to present as experts in a given case, and who become *ipso facto* the honest partisans of their employer, especially when he fixes their compensating fee.

Another unjust phase of this matter relates to the frequent discriminating inequality between the prosecution and defense in their relative ability to indulge in the expensive advantage of employing experts to testify in their behalf.

A notorious and likely to be celebrated case is now pending in the courts of New York City which fully illustrates this point.

The district attorney, with the city treasury to draw upon, is said to have engaged the services of an array of talented experts whose fame can scarcely be matched. Two are to appear upon the subject of chemistry, two upon that of materia medica, two to take charge of the pathologic aspects, and one is employed to expound the special subject of toxicology. By membership in their faculties the staff will represent the following great institutions: The University of Michigan, the College of Physicians and Surgeons of Columbia University, the University of the City of New York and the University of Pennsylvania. In addition to this a very noted doctor-lawyer has been hired to arrange and adduce the scientific testimony in the case.

On the other hand, and in consideration of such formidable preparation on the part of the People, the pertinent question is very naturally asked by a prominent New York newspaper, "How is the poor defendant to get experts from Michigan and Pennsylvania, the first in their profession to testify for her?" [1]

This unfair relation of the almost always impe-

cunious accused in criminal cases is by no means uncommon, and its injustice is too apparent to require extended comment.

It would seem in this era of specialism in study and practice that the line might without great difficulty be satisfactorily established whereby the status of an expert in a given department could be previously obtained and certified. But the standard of qualification obviously must be defined by and through the medical profession in such manner as to command the entire respect of the courts, and merit the approval of the public at large. This, it may be said, has already been practically done, but advantage can never be taken until the system of taking expert testimony has been so radically changed that the proper restriction as to the manner of selection and appointment has been regulated, to the extent that the expert witness shall in all cases be an officer of the court, and occupy a position with reference to the subject concerning which he is to express an opinion of absolute independence and impartiality.

In this view the function of the expert would be advisory in the strictest sense. He would, and should, be the mentor and censor both to the court and jury, and thus would the average jury be relieved of the always too great responsibility of determining upon questions of such scientific delicacy as to require a technical knowledge that presupposes years of study and experience to attain.

Nothing can be more absurd and contradictory to the professional mind than to call together twelve men, selected for the most part *because* of their ignorance and stupidity and their unfamiliarity with the facts and circumstances, and compel them to sit in judgment upon the radical and sometimes chaotic disagreement of opinions of those whom education and years of continuous practical application have qualified them to express. The unintelligent juryman is thereby exalted to the lofty position of an arbiter upon the points at issue, obliged in the brief period of time to qualify himself as such, and systematically deceived, misled and narrowed as to the aspects of the case which he is permitted to consider under the rules of evidence.

Paradoxical as it may seem, however, there is a strong measure of doubt whether this system of consideration and decision by juries even of the kind referred to can be improved, for the simple reason that no other plan has yet been devised which would not have similar defects and be open to the same, and perhaps greater, objections.

A very distinguished jurist, writing reminiscentially of his experience as associate justice of the United States supreme court in support of the existing trial by jury, declares in effect that the differences and disputes of the members of that august court leading up to decisions do not materially differ from those of the average petit jury, and that notwithstanding their profound legal learning the actuating motives and influences are essentially the same, particularly as to matters of fact.

Furthermore, if reform could be accomplished in criminal jurisprudence by the modification of the jury system it would be impossible as, it is hardly necessary to state in this presence, the right to trial by jury must forever remain inviolate under constitutional provision. For the same reason it may also be said that the right of a defendant or plaintiff to call his own counsel and witnesses and cross examine those opposed to him can not be denied or in any degree curtailed.

It follows then that if reform in the presentation of medical expert testimony is ever to be accomplished, it can not be by way of any change in the jury system of trial at present in vogue. It is much more possible that it will come through an improved and acceptable method of obtaining, and submitting for deliberation by the jury, the associated scientific facts and relations.

In the judgment of the writer the following propositions would seem to fairly comprehend the circumstances:

1. The appointment of a commission of experts by the court in each case requiring it, the experts to be especially qualified by educational experience as such.
2. The establishment of an educational curriculum and a period of service in each branch of medical science by which the qualifications of an expert witness may be known and certified.
3. Just and adequate compensation commensurate with the character of the service should be awarded, and should in every instance in criminal cases be paid from the public treasury upon the certificate of the presiding judge. In civil cases the compensation might or might not be fixed by the court, but should be taxed as costs to abide the event, or, by agreement, the expense might be equally divided between the contestants in the action.

With these somewhat desultory remarks, for which it is not pretended that they convey any new or original ideas, but that they simply express the individual thoughts of the writer and endorse the views that are commonly entertained among those of the profession whose opinions are entitled to carry the weight of authority, your attention is respectfully invited to a brief history of the movement which is now in progress, and is rapidly assuming influential and promising proportions in the State of New York, looking to the correction of the evils of the prevalent method as far as may be by appropriate legislation.

During the session for 1895 of the Medical Society of the State of New York, a special committee, comprising some of the most noted and competent alienists and medico-legal authorities of the State, was appointed to coöperate with the standing committee on legislation to duly consider the subject and report the most feasible plan of procedure.

Soon thereafter an extensive correspondence was undertaken among the prominent jurists, alienists and medical experts of the country, in order to obtain a symposium of essays illustrative of the relative personal status of the individuals addressed for the subsequent guidance of the committee.

With notable unanimity, the opinions expressed in all the replies received were substantially the same in regard to the main propositions.

All agreed, first, upon the growing necessity for the reform; second, that the true solution of the problem consists in the appointment, by the common consent of the court and the contending parties, of a commission, or a board, of experts, in each case, to act in an advisory capacity in the presentation of the scientific aspects to the jury; and third, that absolute independence can only be secured by an arrangement whereby the honorarium shall be a public charge, the value of the service to be determined by the court,

1 Editorial, New York Sun, April 26, 1896.

thus divesting the proceeding of the commercial character so much to be deplored.

The greatest diversity of opinion appeared to be with reference to the appointing power—some advocating that the appointments should be made by the governor, and that the board should be a permanent one; many believing that the State should be districted for the purpose after the method in common practice in continental Europe. Others thought that a permanent board should be designated by the State Commission in Lunacy and be of a non-partisan character; and still others who expressed the view that the appointing power should be vested in the board of regents of the State university, they to pass upon the qualifications of the incumbents in the same manner that medical practitioners are now licensed after examination by the State board of examiners, and that it be unlawful to designate any person to give expert testimony who does not possess the regent's certificate setting forth that he is duly qualified.

A general commission was suggested, to be permanently established by statutory enactment to represent all departments of science (and perhaps mechanics) upon which requisition might from time to time be made when the occasion should be such as to demand the service of an expert.

A special commission for each case was more commonly advised, to be named by the presiding judge, and to be composed of three or five members, one or two to represent the prosecution, one or two to represent the defense and one to be nominated as the special representative of the court; all questions of a technical nature to be submitted to them and their replies and conclusions to be in turn submitted to the court and jury, any or all of the experts to be subject to subsequent cross examination upon the report rendered should the parties to the action so elect.

With these data at hand, which seemed to contain a complete consensus of the general trend of thought upon the subject, the committee compiled a condensed report in the form of a preamble and resolutions which were promptly acted upon and unanimously adopted.

In accordance therewith, a proposed law was formulated under the intelligent direction of Dr. Carlos F. MacDonald, the president of the State Commission in Lunacy, and its introduction into the State legislature secured by the writer. It is believed that the bill embodies in substance the required measure of reform in criminal cases, recognizing of course the fact that no bill can be drawn which would be *entirely* free from constitutional restrictions.

STATE OF NEW YORK. No. 1943. Int. 1375. In Assembly. March 26, 1896. Introduced by Mr. Scherer—read once and referred to the committee on the judiciary.

AN ACT

To regulate the employment of medical expert testimony in criminal proceedings.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. Whenever any person in confinement, under indictment for the crime of murder, attempt to murder, manslaughter, arson, highway robbery, forgery or other felony, may desire to present medical expert testimony in his defense, whether of a medical, surgical or chemical nature, he shall so inform the court at the time of his arraignment for trial, whereupon the presiding judge before whom such trial is pending shall appoint such number of experts as he may deem necessary to adequately represent both the prosecution and the defense, and the compensation of such experts shall be fixed by an order of the court at a rate that shall be reasonable for professional services of such a nature. The experts so appointed shall be persons of repute and qualified in the branch of medical science to which the question calling for expert opinion relates; and shall have full and free access to the evidence adduced on the trial, as well as to the defendant, if the issue involves his mental or physical state. On the completion of their examination, the said experts shall submit to the court for transmission to the jury as evidence a report in writing, attested by their oaths, setting forth their conclusion, together with the facts upon which such conclusion is based. If counsel on either side shall demand it, the experts may be sworn as witnesses, but their examination and cross examination as such shall be limited to the facts and opinion contained in their report to the court.

SECTION 2. All acts or parts of acts inconsistent with this act are hereby repealed.

SECTION 3. This act shall take effect immediately.

It may be surprising to state that at the first hearing before the committee on judiciary to which it was referred, although the bill was carefully scrutinized by the statutory revision commission (the State board of reference upon the phraseology of laws) the advocates of the measure were confronted by a question involving the doubtful constitutionality of the passage relating to the subject of cross examination. Contention was made that cross examination could not be confined strictly to the matters contained in the report adduced, and that the defendant would still have the right to go outside of the report and call witnesses to combat the testimony therein; and in case of his acceptance of the special expert commission such circumstances would place him in the position of attacking the testimony of his own witnesses.

You will agree that this is a knotty point, and observe how difficult a task it is to frame a law that would be entirely free from similar antagonism.

Another objection may properly be mentioned:

In a recent editorial comment[1] attention was directed to an apparent ambiguity of expression regarding the report of the contemplated special commission, namely: That it does not specify as to whether the experts shall submit their report collectively or as individuals. If collectively, it may still be a question whether a majority and a minority report shall both be permitted, or a unanimous declaration required.

Of course the bill should be amended in this respect.

The proposed law will be modified in a way to meet, if possible, every objection raised, and upon that point it is hoped that some helpful suggestions may be made by the members of this section.

This legislative proposal is now pending in New York with no real expectation that it will be enacted during the current session. That would be almost unprecedented in so important a matter. But it may be written down that no effort will be spared nor opportunity neglected until the desired reform has been achieved.

The contest will be continuous and uninterrupted, and it is expected that the profession throughout the United States will give all aid and support possible, as favorable action in New York will greatly tend to influence similar legislation in all other States of the Union.

By way of comparison, it will not be amiss to introduce at this point the text of a bill which was presented to the legislature of the State of Minnesota several years since (1893), and about the same time in the legislature of Illinois in practically the same form.

This formulation was first reported to the Minne-

[1] American Medico-Surgical Bulletin, Vol. ix, page 556.

sota State Medical Society by Dr. B. J. Merrill, chairman of the section on medical jurisprudence. The proposition was very carefully studied in connection with the movement in New York State:

Be it enacted, etc.

SEC. 1.—In all cases pending in the courts of this State, civil and criminal, before or at the time of the trial of said cases, the judge of said court, when it is made to appear to him that the appointment of experts upon medical, scientific or mechanical questions is desirable, may appoint such experts to examine into the subject matter in controversy, said experts so appointed to be selected in reference to their impartiality between the contending parties; the number of such experts in each case to be fixed by the court.

SEC. 2.—In all cases where experts are so appointed, the court is to fix their compensation, and in all criminal cases direct the payment of the same in the same manner as witnesses on the part of the State are paid; in all civil cases the amount so fixed and determined by the court shall be taxed as disbursements by the successful party.

SEC. 3.—The court may order such experts to examine into any medical, scientific or mechanical question, and after such examination to testify in court in reference thereto.

SEC. 4.—The testimony of said experts so appointed by the court, shall be *prima facie* evidence of the statements and conclusions as to the questions in reference to which said testimony has been given.

SEC. 5.—The court may also fix and determine the amount to be allowed such experts for and on account of any medical, scientific or mechanical examination, analysis or test, which the court may deem advisable to have made, and direct the payment thereof, or permit the taxation thereof as costs as hereinbefore provided.

It is understood that considerable effort was made to secure the passage of this proposal in both the States mentioned, but it was successfully opposed in both instances. The bill has great merit, however, and should have met with a better fate.

It will be noted that it differs from the New York bill in several important respects:

1. It provides for civil as well as criminal cases.
2. It permits of unlimited examination and cross examination of the experts appointed, and does not specify a written report to the jury.
3. It makes provision for the regulation of analyses and tests in all cases requiring it, and also prescribes the payment of adequate fees for the same.[2]
4. It includes questions of a mechanical nature, but does not specifically mention those relating to surgical subjects, although the construction likely to be placed upon the terms "medical" and "scientific" would probably make satisfactory application.

Originality has not been attempted in this paper, nor has effort been made to treat any phase of this absorbing question to any extent exhaustively. It is simply what its title implies, namely, "remarks upon medical expert testimony and proposed relative legislation."

The drafted formulas are placed before the section in the belief that suggestive and critical discussion will lead to conservative results.

Let it be borne in mind that the New York proposal is nobody's pet, and the same may doubtless be said of the one introduced for comparison.

The true motive of all concerned is to secure the adoption of a wise and beneficent measure which will comprehend the requirements of the occasion, correct the prevailing abuses, and elevate our moral standing before the courts to the dignified position to which it is justly entitled.

Reform is urgently needed. The "cause is ripe" and the demand is rife.

[2] In New York State the penal code provides for chemical and other scientific analyses upon the order of the court, the compensation to be fixed by the district attorney and paid by the county treasurer upon the district attorney's certificate.

INSANITY IN COURT.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY L. HARRISON METTLER, A.M., M.D.
CHICAGO, ILL.

With the rapid growth of knowledge and the steady development of new forms of industrial activity, the employment of expert testimony for the instruction of the courts is becoming more of a necessity every year. This is admitted by all. The present method of securing this testimony is acknowledged to be both defective and inadequate. On account of this faulty method, expert testimony itself is occasionally most unjustly criticised and ignorantly ridiculed. From the method of its engagement to the system of expert testimony in general the blame has been transferred, and some narrow minded jurists have even cast slurs and insults upon the experts themselves, thus completely losing sight of the real cause of their dissatisfaction, namely, the ancient and absurd method in which the expert is brought before the court. Lord Campbell revealed a partial comprehension of the trouble, when he said that "skilled witnesses come with such a bias on their minds to support the cause in which they are embarked that hardly any weight should be given to their evidence." What gives rise to this bias might have been asked of the noble lord. He insinuates his answer in the statement that they come "to support the cause in which they are embarked." In other words, the expert is a biased individual, just as my Lord Campbell himself would have been, had he been engaged and remunerated by one or the other side in the contest. To secure an unbiased legal opinion from my noble lord, it was necessary for the State to elevate him to the bench and to pay him a wholesome sum out of the public treasury. Experts are human beings with the same human frailties as lawyers and judges, and I have a suspicion that among experts there is a larger, or at least equal number of individuals who honorably decline serving, and who often forego a most tempting fee when they discover that their scientific testimony will be damaging to the parties who have summoned them. As he is now placed the scientific expert is not an *ex parte* witness and Lord Campbell's *biased* insinuations in regard to the honesty of the expert, reflects more unfavorably upon the legal profession and the legislative powers, in whose hands the maintenance of the present defective system so largely rests.

Once a judge of Maine declared that if there be any kind of testimony that is not only of no value, but even worse than that, it is in his judgment that of medical experts, all of which criticism is highly commendable if the honorable judge is at the same time exerting his influence to induce his own guild to institute the needed reforms by which medical expert testimony may be able to exercise its proper function and to reveal to the court the value which the rest of the world recognizes it possesses. A New York judge very *judiciously* classifies witnesses as liars, blank liars and experts, which is all very facetious and may be allowed to pass as a very *judicial* joke. Mr. Weil, a lawyer of some acumen, once said: "The fact is the average lawyer does not qualify himself to examine an expert, he qualifies himself only sufficiently to conceal his own ignorance." I do not think

the average medical expert can be charged with such an unwarrantable delinquency.

Maudsley suggested as a means of softening the virulence and disgracefulness of the disputes between lawyers and doctors in our courts, the abolition of capital punishment. In the words of Mills: "Some of our learned judges are not without blame for this state of affairs. The decidedly antagonistic stand which they seem ever prone to take against reputable physicians in *habeas corpus* and other cases in which questions of medical opinion are at stake, has put the profession into such a frame of mind that in Philadelphia—and it may be the same throughout the country—many physicians now refuse altogether to make affidavit." It seems to me that these "learned judges" are so easily biased, considering the freedom from one-sided influences which their position and income enjoys in comparison with that of the experts as it now is, and considering the large amount of honesty of opinion expressed by experts, even under such unfavorable conditions, that these same judges are constitutionally less fitted to administer justice in court than are the experts they antagonize fitted to give scientific testimony.

Those who recognize the faultiness of the present method of expert examination anticipate very little reform for a long time to come. The legal fraternity has almost complete control of the judicature and legislation of our country. The medical profession has comparatively little to do with either. Now the trend of law and medicine are almost in diametrically opposite directions. Legal judgments are founded in large measure upon precedents; they are based upon authority which generally is better the more ancient it is; to a considerable degree the legal mind looks backward for its guidance. On the other hand medicine, being a science, looks forward and to-day recognizes facts and formulates principles that it scarcely dreamed of yesterday. Our modern judiciary system is hoary with age; and its strength and dignity rest largely upon its antiquity. On the other hand much of our knowledge of insanity is of very recent date, being founded upon discoveries in anatomy and physiology made within the last decade. At one time mental diseases were so little understood that there were perforce no experts upon them; their manifestations were simply strange *facts*, the decision of which was as much within the capability of the layman as of a medical man. The acts committed by an individual on trial for insanity could be as well established and the insanity itself (which was necessarily of a gross form) could be as well determined by an ordinary jury as by any body of professional men. The only questions to be solved were the commission of the acts and whether a supposedly sane person would have committed the same acts. The absence or presence of a rational motive and the power to distinguish right from wrong, were the only plausible and apparently reliable tests that could be applied. The psychology of that day was about as well acquainted with insanity as the law itself was; hence it readily acquiesced in the legal tests then formulated. Now, however, all this has been changed, at least in regard to our knowledge of insanity; whereas our system of judicature has remained the same. In regard to the conceptions of mental phenomena, law and medicine started out together upon the same path but the paths soon diverged, and now have become so widely separated that there needs to be an entire readjustment in regard to medico-legal questions. Medicine recognizes to-day special and complicated forms of insanity. It has discovered since the formulation of the old legal tests, particular varieties to which these tests are wholly inapplicable. It has uncovered the physical lesions for some of them at least. The diagnosis of them is now a matter of greater refinement and depends upon much more subtle symptoms than such signs as the inability to distinguish right from wrong or the absence and presence of certain motives. In a word our system of administration of justice has not kept pace with the progress of science; it has not readjusted itself to the newer scientific state of affairs.

Perhaps the most glaring fault in the present management of expert testimony, is its engagement by the opposing counsel. Human nature has its weakness in scientific men as well as in lawyers and when experts are thus hired they are almost forbidden to be experts by being made partisans. Even were the condition so Utopian that none but honest experts could be secured, that those whose opinions were found to conflict with the interests of the side engaging them would refuse to testify, there would always be some, equally honest, whose opinions would differ, especially upon points of science still open to controversy. They would be engaged and thus the court room would become the scene of a scientific debate much to the dismay and confusion of an uninformed jury. Such is the way things are managed at the present time. The counsel fixes the medical opinions for the court and then hires those experts, or self-styled experts, who will be most likely to support his side of the contest. Between the two sides a rhetorical display of scientific quibbling is presented for the edification of the court and jury; more often a roaring farce is performed; the judge becomes incensed, the jury falls into hopeless confusion, and the few deserving experts in the case are brought to shame and made the victims of most unjust sarcasm. Volunteer experts would be better than those paid like partisans for one side or the other; but as volunteers would be hard to secure, experts paid by the court or government should be employed and only such experts. That would be one step toward the elimination of the partisanship feeling in regard to expert testimony.

But the counsel tell us that their purpose after all in the cross-examination of opposing experts, is the elucidation of scientific *facts* and not the hearing of any scientific *opinions*; that one layman is as capable of deciding *facts* as another; and that a jury of laymen should be the only body to decide upon such *facts;* for the establishment of the truth or falsity or rather the presence or absence of *facts* in the case being tried, is the fundamental object of our great jury system. In the words of Hornblower (Hamilton's System of Legal Medicine, Vol. II, p. 131)" The primary object of expert testimony is not to prove opinions but facts in the shape of rules of science as are generally recognized." And again, the counsel tell us that the present method of engaging experts is the best because it carries out most effectively the great principle in our system of judicature, that every man under accusation has the right to interrogate and to confront his accusers and witnesses. Both of these arguments of defense set forth by our legal friends, are right in principle but wrong in practice as medico-legal questions are considered to-day. When the power of distinguishing right from wrong was the test and apparently the only test of insanity, and

when *facts*, scientific medical *facts*, were scarce in regard to the many mental phenomena of health and disease, the present system of our courts would have been fully adequate to lead to a decision. To-day, however, every intelligent man admits that there are new *facts* revealed by science that none but a skilled specialist can recognize. This is true of all the sciences as well as of medicine. The court, for instance, does not submit to a jury of laymen an abstruse chemic question but takes the facts detailed by an expert chemist and instructs the jury to accept them as detailed. The discovery of arsenic in a man's stomach is not left to a jury to decide, nor is its presence or absence dependent upon any arbitrary legal test, such as the discernment between right and wrong for insanity; but an expert chemist is called and his observations accepted as proof of the presence or absence of the poison. Likewise the decision of insanity in a case on trial should not be left to a jury, because insanity is diagnosed to-day upon finer symptoms than the mere power to discern right from wrong, etc. The *fact* of insanity can be affirmed only by a special student of the disease and the majority of laymen would be confused and embarrassed by what to him would be clear and self-evident. Furthermore, in many cases of insanity the only *facts* comprehensible to a lay jury would be certain strange acts, delusions, etc.; but to the expert those isolated, scattered facts, which would seem to mean so little to the average layman, might indicate a great deal. Hence, while to the jury the experienced expert may be able to enumerate only a limited number of facts within their comprehension, he from a long study of similar cases may be capable of giving a most valuable *opinion* in regard to the sanity of the prisoner. Certain impulses such as homicide in acute mania, suicide in melancholia, certain delusions as that of grandeur in the early period of general paralysis, religious exaltation, illusions and hallucinations in other special forms of mental derangement, may when described to an average jury as isolated *facts* or more general *principles*, bear very little weight, because such a jury has not been impressed with the importance of those isolated facts as evidences of mental aberration, by seeing them repeated and duplicated in hundreds of similar cases. The experienced expert, on the other hand, has seen such and from the few apparently unimportant *facts* is able to give to the court the *opinion* that the prisoner is a victim of one or other form of insanity.

I believe, therefore, most emphatically that an expert should not be put into the position of a *witness*. Often he has witnessed so little in regard to the prisoner at the bar as to render his testimony in regard *to* the *facts* about that prisoner's mental condition of small worth. The expert should occupy a *judicial* position, so that after a thorough examination of the prisoner, he can give a full and unbiased *opinion* of his mental condition, based upon the thorough examination and his large experience in the study of like cases. The increased refinement in the diagnosis of mental diseases at the present time, demands the exercise of an experienced judicial mind. It asks for something more than the bare statement of a number of isolated facts. A genuine expert is to-day, in the light of our increased knowledge, something more than a witness; he is a judge with an opinion to offer or he is at least an adviser capable of guiding the court's opinion. His worth is much diminished by putting him in the attitude of a mere retailer of certain scientific facts, which in their isolated presentation may throw but a limited light upon the case in hand.

The same explanation accounts for the inefficiency of the *hypothetic question* as a means of obtaining an expert's opinion. This form of examination prevents the expert from rendering a judicial opinion. As it is now employed it brings into prominence symptoms of little importance and suppresses others that may be of the greatest significance. If it is to be made use of at all (and the instances in which it is of any value are testamentary cases in which the maker of the disputed will is dead), it should at least be worded and presented by the court and not by either of the opposing factions. In the framing of the hypothetic question as it is now done, the partisan spirit enters and so construes the facts of the case as to make them appear otherwise than they actually are. Granting, however, that the question should be framed by the two sides in such a way as to eliminate every suspicion of partisanship, it may be presented to the expert and court in such a manner from the legal or lay standpoint as to be perfectly meaningless or completely unanswerable to the expert. In such a case an expert will wisely decline to say anything, for he will be obliged to keep within the limitations set for him and though he may know that a single word of explanation upon his part would change the whole face of the question, that word will usually not be allowed him. Thus his valuable knowledge will be lost in the trial. If he foolishly attempts to answer the question, and thus more often than is agreeable puts himself in a position not well fortified by his own explanations, he will sooner or later come to grief in the hands of the opposing lawyer, and appear before the jury in a most ridiculous and self-contradictory plight. This is not an uncommon exhibition in our courts, and it is one of the chief causes of the disrepute in which experts are held.

I believe that every case in which insanity is entered as a plea should have a separate medical trial. This need not in the least remove the case out of the jurisdiction of the court; for the same judge may preside and in accordance with the result of the medical trial, the prisoner may be sent to an asylum or referred to the ordinary court for a civil trial. In the latter, however, all questions as to the mental condition of the prisoner should be excluded. This would undoubtedly diminish the number of insanity pleas now entered for the defense of criminals. The criminal as well as his lawyer would hesitate before coming under the examination of a carefully selected commission of medical experts; whereas now he is almost certain he can confuse an ordinary jury and so secure a verdict not in accordance with his deserts. The very weakness of the present system is exposed in the enormous number of insanity pleas that are annually brought before the courts. Criminals recognize a source of strength in their own defense, in the difficulty experienced by the average jury in deciding upon a case of insanity. It is the greater misfortune, however, that the disadvantage works also the other way, for it is a notorious fact that the gallows has more than once ended the life of a poor demented creature, irresponsible for his deed and sent into eternity by the unjust verdict of a confused and ignorant jury of laymen. It has been argued that a separate medical trial or examination before a commission of experts would thwart the very purpose of our time-honored jury system, in which a man charged with a

crime is given the privilege of meeting face to face his accusers and of receiving his sentence at the hands of his peers. Now, I maintain that the present mode of examination is the one which contravenes the spirit of this fundamental legal maxim. If a man accused of a crime, enters a plea of insanity as his defense, or if he is suspected of being insane, he for the time being stands as the representative of some one of the many forms of mental disease. In a word, he is, as it were, that disease itself, whether he is attempting to counterfeit it or is actually its victim. It seems to me, therefore, to be a self-evident proposition and one that is almost axiomatic, that in the abstract the peers of such a man are those who know most about the disease which he is manifesting. The latter in their knowledge of it are equally its representatives, and they, like the prisoner, stand, as it were, in its place; certainly more so than any layman who knows nothing about such a disease. There can be no sort of parallelism or comparison drawn, in the abstract, between the victim of an abstruse and delusive form of insanity for which he stands in reality as the living representative, and a body of ignorant, inexperienced jurymen gathered haphazard from out the street, who have probably never seen or heard of the simplest forms of mental aberration and for whom a few hours' hurried explanation of it in a crowded, somniferous court-room can only afford a vague and uncertain opinion. Why, a class of first-year medical students would constitute a better jury than such a one for the trial of insanity, while the trial itself would be more in the spirit of our great jury system, for the medical students would, at all events, have seen a little of the possibilities and probabilities of disease. For a military misdemeanor a soldier is tried by a court-martial, it being understood that his peers are those who know most about the military rules and regulations that he has broken. A clergyman is tried for heresy by his fellows, because they alone are his peers in knowing most about the doctrines which he is supposed to have denied. Likewise a crime done by a supposed lunatic should at least have a separate medical examination to determine at least the lunacy of the criminal, for the legal peers of such a criminal are those who know most about the vagaries of lunacy.

In conclusion, then, I believe that the present method of examining cases of insanity in our courts is unjust because:

1. The engagement of the expert by the opposing counsel is prone to bias the expert and to nullify the truthfulness of his testimony.

2. The discovery of a number of isolated facts (which is the affirmed purpose of an examination in court) is not in the present advanced state of our knowledge of mental phenomena, the most reliable way to diagnose insanity.

3. The value of an expert's testimony is vitiated by the fact of his being placed in the position of a witness to testify to certain isolated facts, instead of the position of an adviser to the court to give his full and unbiased opinion.

4. The hypothetic question hampers even the most learned experts and in the end often places them in a contradictory and absurd attitude from which it is difficult for them to recover.

5. The present system does not carry out the abstract spirit of the law that every man shall be tried by his peers; but on the other hand works injustice in many cases of real insanity and favors the exercise on the part of criminals of feigned insanity.

6. The old legal tests of insanity, which are of a more or less popular character and were sufficiently adequate for the guidance of the average jury in former times, are not tenable to-day in the advanced state of our knowledge of mental phenomena and their manifestations.

The remedy I have already hinted at consists in the separation of the medical from the civil trial. The former is to be conducted in the presence of the judge by a commission of learned and experienced experts appointed by the supreme court or in any other way that will keep the appointments beyond the influence of politics; this commission to be remunerated by the State in accordance with the dignity and seriousness of its decisions. If the result of this trial or examination by the commission of experts, be that the prisoner is insane, no appeal is to be allowed, but the prisoner is to be removed to an asylum for medical treatment. If, however, the commission decides that the prisoner is not insane, then he is to be submitted to a civil trial in the ordinary way and punished or acquitted in accordance with the verdict.

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EXPERT TESTIMONY IN DISPUTED CASES OF INEBRIETY.

Read in the Section on Neurology and Medical Jurisprudence at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

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During the past year several very important cases have brought out the most widely divergent expert testimony, clearly showing the need of new study of this subject.

Disputed cases of inebriety are increasing every year. Not the petty contests of police and criminal courts, where the questions raised are technical for partisan purposes, but facts of great interest and profound questions of science on which large issues turn. In one case, the final disposition of over a million dollars turned on the question of the normal condition of the mind of a testator who used spirits to excess. In another case a forgery which implicated many persons, depended on the judgment of experts relating to the motives of an inebriate. Several murder and homicidal cases have been disposed of on the testimony of medical experts. The final issue of all these cases has been the subject of divergent views in both legal and medical circles.

The usual criticism that expert testimony is purchasable and unreliable to the highest degree, has become a common observation in court rooms. In reality the ordinary expert testimony that is vague and confusing becomes so through the faults of the legal battles of lawyers.

In every case two theories are assumed and the struggle is to prove the one and disprove the other. Facts, theories and statements of every possible character are gathered, grouped and twisted in every way possible for this purpose. Scientific opinions of every description that seem to sustain one view or the opposite, are marshalled and placed in their best form to carry conviction irrespective of the truth. The central object of the opposing counsel is to prove the truth of their side of the question and not to ascertain

the actual facts or principles of equity involved, and expert medical testimony is called for this special purpose. Consciously or unconsciously, the expert becomes a partisan and, with the counsel, believes a certain theory true, and in his efforts to sustain this position, under the cross fire of the opposing lawyers, appears to a great disadvantage. The fault is not that of the expert, it is the vicious legal system of ascertaining facts.

Suppose two physicians enter upon a partisan contest to prove that a given case is one of typhoid or simple derangement of the digestion, and each one gather and twist all possible facts to sustain his theory. The failure of both to secure the real facts and make clear their position would be inevitable. Take these two men in court with care-testing counsel to sustain and coach them. Then have the subject obscure and not clearly defined in fact or theory, and the wonder would be how any truth could be ascertained by such methods.

The present methods of securing medical men to sustain opposite views, by grouping a mass of statements which are half truths and distorted, strained conceptions, and enlisting physicians to defend them by assuming that they are complete facts, is danger- and utterly subversive of truth. The common experience of presenting to the expert a view of the case which supports the theory the counsel is called to defend, and convincing the expert that this is true, then retaining him on the trial is the beginning. Then the trial begins with the expert in possession of a certain class of facts which he is soon biased to believe.

In the meantime he has fortified these opinions by reading and examination of all the possible authorities, and grouped all the facts which support and make the theory clear. On the trial he hears the other side, but the constant presence of the counsel who is defending the theory he has been retained to support, neutralizes and explains away the opposing facts. Every night the counsel literally coaches the experts by arguments and explanations, and strengthens his former convictions wherever they may have been shaken by other testimony.

Finally, the expert is a partisan who is fully convinced of the truth of the theory he is called to support. He goes on the stand and under the cross fire of counsel fails to make his theory clear, or impress any one with respect for his fairness and scientific accuracy. He is prejudiced from the start; his scientific sense of judicial examination of facts is enfeebled; he has become, unconsciously or otherwise, imbued with a strong bias in the belief of the accuracy of a certain class of facts. Of course the pecuniary fees will in some cases add to this, but in most cases unconsciously. On the stand opposing experts who are equally partizan and confident of the truth of an opposite theory are able to detect and expose the errors of the other. Finally, the expert testimony becomes a mere word battle in which all the energies of each side are concentrated to win their theory. The "hypothetical case," which is supposed to group all the facts in one picture, is made to prove and disprove opposite theories by the merest word juggling, and the emphatic affirmative and negative answers demanded still farther confuse the real facts in question.

There can be no question that the fault is in the system, not in the medical men, who wisely or unwisely try to reach accurate conclusions along impassable paths and roads of study. The most celebrated cases which turn on medical testimony, and those of minor interest, show the same confusion of means and efforts to reach the facts, and the hope of change and improvement is removed to some future, when medical testimony will be given in commission and on paper, as exhaustive independent studies of the facts at issue.

There is another phase of expert testimony which needs a new study from a different standpoint. I refer to the disputed cases in which the question of how far, and to what extent, has the use of spirits impaired the brain and influenced the act in question. Strange as it may appear, the medical answers to this question are very largely colored by the previous convictions and personal habits of the expert. This is illustrated by life insurance applications in different sections of the country. Certain medical examiners will consider the continuous use of spirits, with an occasional attack of delirium tremens, of no importance as impairing the risk of the life of an applicant. In like manner a noted physician swore that the continuous use of spirits for twenty years would not necessarily impair the capacity of the brain. Of course the honesty of the witness must be assumed, but his prejudice and evident partisan attitude was apparent. We have reached a position now in psychologic research when the paralyzing effects of alcohol on the brain and nervous system can be asserted as an established fact. The fascination which causes it to be repeated and become a daily drink is from its narcotic properties. It brings relief from pain, rest and a sense of comfort which requires repetition and increasing doses to keep up. Its action provokes a desire for more and the injury of to-day seeks relief from the same drug to-morrow. This use may be continuous or in paroxysms, but in all cases there is positive injury, unknown in its nature and extent, until finally it manifests pronounced symptoms of degeneration and disease.

In any given case, where the history indicates continuous or paroxysmal use of spirits for any period of years, the inference of mental impairment and defects will be supported by an appeal to the facts. It may be safely asserted beyond fear of contradiction that no one can use spirits for any length of time and be sane and of sound mind. Any act which is in dispute, performed by a moderate or continuous drinker, is open to suspicion. In the history of any case, if the use of alcohol and other narcotics is established, the expert has a starting point from which to examine and study physical and psychical changes that show the real condition. The study of the drink history is the key that will clear up many of these cases. A practical illustration is found in the famous Ross case. Here, a homicide and suicide was committed, and a will written at about this time was contested. His conduct before and after the will was not unusual, but his drinking history showed continuous use of spirits in large quantities daily. From this it was evident that his mind was enfeebled, and although acting along lines of automatic activity he was clearly unstable and likely to explode any moment into some form of insanity. The more accurately his drink history was known the clearer the insanity of his case became.

The drink history is a very essential factor in the study of the symptoms and is of more importance

than change of conduct, appearance and thought. These may remain substantially the same, or be so concealed as to escape observation.

The mental state of a person at a certain time and in certain circumstances is to be judged from a great variety of conditions. This study should begin with heredity, family diseases, peculiarities and surroundings. Then go on to birth, nutrition, culture, diseases, injuries and surroundings. This leads up to the vast range of influences and their power over the mind and body, and furnishes a comparative clear conception of the physical and mental conditions present. Then comes the question of the disputed act, whatever it may be. Was this natural and along the line of his usual activities? Was the act and its motive reasonable and natural to him? Was it a natural sequel to his drinking history, or any other line of conduct?

These and other questions can only be answered by an appeal to the facts, and this appeal must be addressed not to one side of his physical and mental history, but to all sides. The expert must analyze groups and study all the conditions, and as in the diagnosis of disease, it is a question of facts and their meanings, not of theories or rulings of courts, or law questions. The case is one of murder or crime of magnitude, and the question is the mental state of the man. The legal method is to begin with the act, and go back and forward for evidence to explain it. In other words to first make an exhaustive study of the act, then go back in the history for evidence and indications which would point to this, or go forward for facts which would follow such a deed. If it is a will or forgery, or theft or assault, it is assured the act itself furnishes evidence of the condition of the mind which inspired it. The expert testimony is concentrated on the act; this is the same as requiring the medical man to form an accurate opinion of a typhoid or other case entirely from the present symptoms. To properly realize the state or conditions of the man at the time of the act, a life history must be gathered and studied, particularly the drink history. These facts of heredity of disease, of surroundings, of occupation.of manner, of life, of his ambitions and purposes and customs and habits. Then the use and effects of alcohol on his life, and the changes, if any, which followed from its use. These and other contributing and influential forces followed up to the disputed act like links in a chain are all connected and all foreshadow the act in question, and all serve to show the real condition of the mind at the time. With these data to judge from, the experts would find no difficulty in making a correct diagnosis. From this point of view all theories would grow out of the facts, and no questions of gathering facts to support a theory would be thought of, and all studies of the act would follow as a stage in the history of the case.

Conduct and thought are the avenues through which unsoundness of mind is seen, and yet they are only properly compared by a study of a previous history. The continuous use of spirits, as a rule, is manifest in changed conduct and thought, yet this change may not pass the limits which would attract attention. This is seen in states of insanity where a semblance of reason remains, and much of the thought and conduct are apparently sane. To illustrate: A man killed his wife, and the act seemed sane and with motive. His conduct and thought before and after had no appearance of other than conscious reasoning of cause and effect. He was tried and convicted of murder. The defense of insanity rested on his drinking habits and the coolness of the act. It was treated with contempt. On the second trial a thorough study of the case showed an alcohol and epileptic ancestry. Severe diseases in infancy, neurotic defects and disorders of childhood. Early use of spirits to excess at puberty, then a degree of moderate drinking from this time on. Five years before the crime he suffered sunstroke. From this period on paroxysms of anger and strange impulsive acts frequently occurred, acts without reason at the time, which he manifested much anxiety to explain afterward. The acts were committed in a sudden impulsive way, the explanations seemed an afterthought and an effort to make clear what was unusual and strange before. Some of these explanations were clear and rational, others were strained and peculiar. In all cases there was a suspicious frankness about his statements that suggested some concealed delusion. He used spirits daily in small quantities, and every four or six weeks he would drink to stupor at night in his room. The next day his manner was changed, he was more talkative and excited, and seemed anxious that full explanations should be made of every event and act. In business he was more exact and methodic, and more irritable and intolerant of the errors and failures of those associated with him. He was sentenced to prison for life, and in a few months developed well marked epilepsy. It was evident that for years he had suffered from premonitory epilepsy, and the homicide was the result of this condition.

Recently a postmortem of a man hung for murder revealed a tumor in the brain, which had evidently been the growth of years. The man was an inebriate, had murdered a companion, and exhibited cunning to conceal the crime. His mental condition had been questioned, expert testimony could not define the disease from the act, and no particular history of the case was made. Seen from the facts of the postmortem, the crime was the act of an insane man. A diseased brain unable to reason and control its acts had been misjudged and judicial murder added to the first crime.

In a celebrated case of a clergyman whose conduct and impulsive drinking had been the subject of much social scandal, and on several occasions resulted in imprisonment, a postmortem at death revealed the real causes. A fragment of a ball received in the late war, was found incysted in the skull pressing on the brain. His life had been prominent by great extremes of character and conduct.

An eloquent, model clergyman and a low dishonest inebriate; great intellectual brilliancy and childish dementia, with paroxysmal explosions that were inexplicable. Expert medical studies had failed to detect the physical nature and causes which were clearly manifest by the symptoms. These studies were dismissed with the terms sin, vice, moral depravity, and given over to the devil. Such echoes of the dark ages are fortunately receding and growing fainter, and the medical man of to-day who uses these terms in explanation of strange conduct is sadly belated. The drink history is an unmistakable evidence of degeneration, of disease, of central brain failure to realize and control conduct and acts. While the expert may not be able to trace the exact lines and forms of known and defined insanities, he can always determine general principles of cause and effect. The use of spirits is a specific range of causes deteriorating

and destructive to all healthy normal brain power. The problem is how far the use of alcohol is a cause or a symptom in any case. How far it breaks up and injures the capacity to reason naturally on events and their meaning. This must be determined in each case from the separate facts and history. The expert must start out on a new original study in each case. He must start from the fact that the medical questions in the disputed case, are purely matters of cause and effect. The criminal or unjust act, the strange unusual reasoning, and the suspicion of brain failure are all susceptible of demonstrations from accurate exhaustive study.

An officer in the English India service was a murderer and forger. He was convicted and before sentence was placed under the care and observation of expert asylum physicians. In a few months a well-marked case of general paralysis appeared, and it was evident that the crimes had been committed in the preliminary stage. The experts in this case could not make out the form of the disease from the facts at command, although the evidence was clear that some form of degeneration was present; later and more exhaustive studies revealed the true condition.

The facts I wish to emphasize in this study are on the errors of the present methods of examining medical men in open courts on questions of facts relating to science. The great difficulty is avoiding a partisan attitude and taking sides in a disputed case. The legal methods of, from a brief study of the act in dispute, forming a theory, and bending all energies to support and defend it, are dangerous and thoroughly unscientific. The haste and confusion in which a medical man is expected to study supposed facts and ascertain their real meaning, and prove a hypothetic question, state positive convictions, is utterly subversive of truth. In every case the physician should insist on time and full opportunity to satisfy himself as to the actual conditions present in a desperate case. He should also insist in stating the reasons and facts on which his conclusions are based, and not be constrained to affirmatives and negatives where each answer depends on certain conditions which will vary.

The second fact which should receive prominence is the drink history in a desperate case. Here the same errors prevail. Theories of alcohol and its effects which have come down from the past together with legal conceptions of responsibility, must be put aside as misleading. Has alcohol in any degree raised the vigor and mental capacity of the person who has used it? Has his thought and conduct been more rational and normal from its use? If this can not be answered in the affirmative from the facts the opposite must be true. In all cases the fact that alcohol was used by the person whose mental condition is questioned opens up a new field of study.

Here critical analysis of facts will point out states of poisoning or marked degenerations that exist. Dogmatism here is fatal to the reputation of the expert, he must adhere closely to general principles and appeal constantly to facts. He must examine and reëxamine the facts persistently to eliminate all possible errors. The medical expert should take the position of a judge and give the conclusions and the facts on which they are founded, then he rises to the level called for by science and truth. Medical men called to give facts of science in court to-day should keep above the levels of courts and battles of counsel to maintain the power which their position demands.

THE NECESSITY OF REFORM IN MEDICAL EXPERT TESTIMONY.

Read in the Section on Neurology and Medical Jurisprudence at the Forty-Seventh Annual Meeting of the American Medical Association at Atlanta, Ga., May 5-8, 1896.

BY DANIEL R. BROWER, M.D.

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The members of this section, without a dissenting voice, will agree with the title of this paper, and feel keenly the discredit brought upon the profession at every important trial where medical expert testimony is employed.

A trial, as I am writing this, is going on in Chicago in which a dozen medical witnesses are arrayed against each other on the question of the responsibility of a dipsomaniac, one set testifying that he is responsible for the killing of his wife, and the other that he is not. Similar discreditable displays have been witnessed in this city in the Cronin and Prendergast cases; indeed every city and every such trial is a most serious reflection on the integrity and capacity of the medical profession.

Medicine is not pure empiricism. Medical jurisprudence is a great compilation of scientific facts, and their judicious use is essential for the establishment of justice in many cases. Medicine is a learned, as it is a self-sacrificing profession, and under proper protection and with proper legislation, medical expert testimony can be relieved of the stigma that is attached to it. It ought to be no longer possible for lawyers to find physicians, who will have standing in courts, to build up this theory, or that theory of a case, as the necessities of the prosecution or defense may require.

This medical expert testimony is not only condemned by the leading thinkers of our own profession, but the legal profession in this country and Great Britain has been equally emphatic in its condemnation; for example, we find Lord Campbell of England, remarking, "Skilled witnesses come with such bias on their minds to support the cause in which they are embarked, that hardly any weight should be given to their evidence."[1] Again, Judge Davis of this country expressed an opinion that "if there is any kind of testimony that is not only of no value, but even worse than that, it is that of medical experts. They may be able to state the diagnosis of a disease more learnedly; but upon the question whether it had, at a given time, reached such a stage that the subject of it was incapable of making a contract, or irresponsible for his acts, the opinion of his neighbors, if men of good common sense, would be worth more than that of all the experts in the country."[2]

Again, another American judge has spoken almost as strongly: "There seems to be but one opinion as to the fact that this kind of testimony is extremely unsatisfactory. We are more and more confirmed in an opinion that the difficulty comes largely from the manner in which the witnesses are selected. If the State or the courts do not esteem the matter of sufficient importance to justify the appointment of public officers, it is certain the parties must employ their own agents to do it; and it is perhaps almost equally certain that if it be done in this mode, it will produce two trained bands of witnesses in battle array against

1 Tracy Peer, 10 Clark & Fin., 191.
2 Neal case, cited 1 Redfield on Wells, ch. iii, 101, par. 13.

each other, since neither party is bound to produce, or will be likely to produce, those of their witnesses who will not confirm their views." [3]

Taylor, in his work on Evidence, observes: "It is often quite surprising to see with what facility and to what extent these views can be made to correspond with the wishes or the interest of the parties who call them. They do not indeed wilfully misrepresent what they think, but their judgment becomes warped by regarding the subject in one point of view, that even when conscientiously disposed, they are incapable of expressing a candid opinion." [4]

In my opinion the time has come for a reformation, and I ask the coöperation of this Section in the efforts that are being made to devise some plan by which the present methods may be improved.

The International Congress on Forensic Medicine, which met in Paris in 1889, representing as it did, the best thought of the times on medical jurisprudence, deliberated thoroughly on this important question, and formulated the following proposition, which was adopted: "To guarantee the interests of society and of the accused, in all medico-legal investigations, at least two experts shall be employed. These shall be appointed by the judge."

Six of the medical societies of Chicago have had the subject under serious discussion, and as a result a joint committee of eighteen was appointed, of which the writer had the honor to be made chairman, and this committee, after due deliberation, have formulated and adopted the following draft of a bill.

A Draft of a Bill for an act authorizing the Judges of criminal jurisdiction in the State of Illinois, to appoint persons to act as expert witnesses:

Be it enacted by the People of the State of Illinois in the General Assembly represented, That the Judges of the Circuit and Superior Courts of the State of Illinois, be and the same are hereby authorized to appoint in the month of January of each year, persons who shall act as expert witnesses in the medical and other sciences in giving opinion upon the evidence, as presented in a hypothetical form, of criminal causes that may be on hearing in the courts presided over by the said judges. Such expert witnesses shall hold their said appointments for one year, or until their successors are appointed and qualified. They shall be entered as expert witnesses upon a list of such witnesses kept by the Circuit Clerk, and the said Clerk shall issue a certificate of appointment as such expert witness to the person appointed as above.

Sec. 2. Such expert witnesses shall be citizens of the State of Illinois, and shall be known in the communities where they reside for their professional competency and personal probity, and if physicians, they shall have been at least five years in regular and active practice. When expert opinion is desired in any cause pending in a criminal court, the trial judge presiding in such cause may, at his discretion, summon for duty under this act, such expert witnesses to the number of three. Such expert witnesses shall be paid for their services by the county in which the trial for which they are summoned is held, in such sums as may be named by the judge.

Sec. 3. It shall be the duty of such expert witnesses to give an opinion on the evidence as presented in hypothetical form in the case in which they are called. Such experts shall be subject to cross examination by both prosecution and defense; but such cross examinations shall be limited entirely to the subjects embraced in their opinion.

Sec. 4. In criminal cases previous to trial, if the State's Attorney deems it advisable to have expert opinion, he shall state to the court having jurisdiction of the cause, and the judge receiving such statement may summon expert witnesses to serve under this Act.

This bill with slight amendments passed one branch of the Illinois Legislature, but failed to reach a vote in the other. It met with much more favor than was anticipated and an effort will be made again this winter to secure its passage.

[3] Gay v. Mut. Ins. Co., 2 Bigelow, Life Ins. Cos.
[4] Taylor on Evidence, p. 73, par. 50.

DISCUSSION ON PAPERS OF DRS. SUITER, METTLER, CROTHERS AND BROWER.

Dr. Hughes, St. Louis, Mo.—I think that the question of expert medical testimony is a far more difficult question to determine by legislative enactment than at first sight appears. The court is undoubtedly entitled to an amicus curiæ in every question of mental aberration; the court can solicit counsel, friendly counsel, from science to aid it in forming its conclusions and judgments. The only thing that seems to be in the way is the neglect of legislators and other authorities, to provide means for the compensation of this counsel.

But after you shall have secured for the court all it requires or may ask in these cases, you still have the inalienable right of the individual accused or arraigned to have such testimony as his case, in his judgment or the judgment of his counsel, may demand. He still has the right, after you shall have enacted laws providing for expert medical testimony to be given in the interests of the court for the enlightenment of the court, to as much testimony in his behalf, or that will contribute to enlighten the jury, as may be necessary to accomplish that purpose and to secure his rights before the law. The chief difficulty in this whole question of medical expert testimony is not so much in the fact that the principle of giving expert testimony by experts as such before the jury, and for the consideration of the jury, is objectionable, as in the quality of the expert testimony itself; and the suggestions of Dr. Suiter meets my approbation entirely in regard to the efforts made to determine the quality of experts who shall be admitted to testify. I do not coincide with the views of Dr. Crothers in regard to the general weakness of medical men in their judgments in regard to expert medical questions. I do not consider that a medical mind is naturally less logical or weaker than the average mind. Some medical minds, like a few legal minds, and a great many more clerical minds, are lacking in trained logical discernment. If a man assumes to be an expert, he should think as an expert and cultivate the judicial faculty of mind and not go into cases biased, not decide upon the presentation of the case only conditionally by one side. I have never made any such mistakes as Dr. Crothers is talking about, although I am a western medical expert, and I have never made the mistake of committing myself to an attorney in any question irrevocably. I have taken facts given to me by attorneys and given conditional opinions, for which I have always exacted a consideration for the opinion itself, without regard to the use that might be made of it. I never took a contingent fee in my life. I have taken fees for time of service, conditioned that I might be required for so many days' service, provided the opinion that I had given, and which was paid for at the time, proves to be satisfactory, supplemented by another opinion when all the testimony was in, with the understanding that I was to have all the opposing testimony before my final conclusion was reached, where that was practicable. There is no reason why medical men that aim to be experts in court should not elevate expert medical testimony in such a manner as to stop this outcry against it. Medical men make no more errors in judgments than lawyers. Lawyers say that the errors of medical men are buried in the ground, but the errors of lawyers are before us constantly; the decision of one court is reversed by another, and lawyers have to have a succession of courts, appellate courts, supreme courts, to correct the errors of judgment of the lower courts; and the arraignment does not hold good in regard to medical expert testimony.

The question in regard to the effect of alcohol in questions of mental aberration, is not whether the man has drunk so much or so little, not whether the man has had such and such drinking habits, and then a conclusion that therefore that man must be out of fix mentally; but it turns upon the question of disease which can be established by methods of obser-

vation familiar to all psychologists, neurologists and alienists, and that is the underlying question in all cases of mental aberration, whether it be produced by alcohol or irregular habits or over-strain. The toxic effect of alcohol does not prima facie make a lunatic. There must be an inherent instability of nerve element in the organ, brought about by repeated potations destroying the integrity of the cell or neuron that gives final instability to mental operation. And the alienist, interrogating his patient carefully and finding that to be the fact, says to the court that he believes this man is diseased, or is insane and irresponsible, and because he is so diseased that his mental operations are not normal, they are out of harmony with his natural character; and thus the individual is placed in disharmony with his environment. The change has come over that individual by reason of disease, and alcohol has been the exciting and it may be the predetermining effect or the chief factor. The individual that makes a business of going into court upon the hypothesis that because a man drinks whisky and commits a crime he is therefore insane, will be exposed in error by a judicial-minded lawyer, capable of discerning appearances from real facts by the proper logical processes.

The criteria of all mental aberration resolve themselves into the question of disease. If it is not a question of disease, medical men have nothing to do with it before the courts; it is out of the province of the alienist or of the neurologist. If it is only a question of conjecture based upon the knowledge of the man having drunk alcohol, in the case of alcoholic insanity anyone can conjecture that that was probably the reason the man committed the crime. But in every form of mental aberration it is a question of disease, whatever may be the exciting cause. So far as all forms of aberration are concerned, except those rare forms which may be called hereditary, and which even in those instances are marked by a departure from natural habits of thought, feeling or action of the individual, we are enabled by careful interrogation of the patient to establish the systematic evidences of disease in the individual's brain and mind, just as we determine the existence of disease in the body. All disease is a perversion of the physiologic action of the organism or of the organ from the normal; and all mental aberration is that same thing. It obeys a certain law as any other physical disease. The substratum of all mental disorder being physiologic disorder of the brain, you have manifestations just as in any other diseased organ. You come back to the proposition of Cabani and you find it almost the same. We do not say that the brain secretes thoughts as the liver secretes bile and the stomach secretes gastric juice, but it obeys these same laws and it displays thought upon the same condition, and if it is out of order so as to constitute the condition of irresponsibility, the character of the brain's functioning will be so transformed as to make the brain act unnaturally, just as the liver acts unnaturally, the spleen, pancreas or any other organ of the body, the intestinal tract, the bladder, the heart; and that organ will be out of harmony with its environment in the organism. Its functioning will be disturbed in relation to the organism and in relation to the individual's environment, and so will an individual's character be transformed and changed, thus placing him out of harmony with his surroundings. It is not difficult for the average medical expert to detail all forms of mental derangement, whether they are produced by alcohol or other causes in that category, and be able to make the thing plain by the coöperation of the reaction tests applied to the urinary excretions, by the ophthalmoscope and other plans within our reach to confirm the conclusion that that man's brain is deranged, and that the departure from the natural habits of thought, feeling or habit of that individual which attracts our attention is the result of that brain disease. These conditions can generally be placed very plainly before the court by experts, so as to bring conviction to the average jury, and at the same time reflect a reasonable amount of credit upon our profession and not make the impression that medical men merely guess at these conclusions.

DR. MOYER—The subject can be divided naturally under two heads: 1, that the personal attitude of the medical expert testimony as given in our courts, is defective, inadequate and even offensive in the eyes and to the mind of man; 2, such being the case, the remedies that are proposed to overcome these defects.

Regarding the first proposition, I do not regard the present system of giving expert testimony as nearly as bad as has been stated here. Now and then there is a case presented, in which there has been a gross miscarriage of justice, or perhaps a conflict of the evidence which is simply appalling. Such a case attracts public attention forthwith, and the whole theory of our present medical jurisprudence is condemned. I believe that there are a large number of cases, both civil and criminal, tried in our courts, in which the present system is adequte and effective, in which the truth is ascertained, and just verdicts are rendered. This is the rule; the exceptions to it are the cases which attract the attention of the public and most medical men.

I do not, however, advocate the present system of giving expert testimony as the best, as I think that it is capable of improvement, but we should approach the subject with care, and we should make very short steps in advance, lest we fall into a worse state of affairs than we have now.

If we consider some of the causes by which medical expert testimony is made difficult, I think we can approach the question of reform with a little clearer apprehension. The fault is not all with the method in which experts are summoned; it is not due to the fact that the lawyer goes to the physician's office, explains to him his theory of the case on a partial statement of the facts, secures his testimony, and makes him a partisan. There are other objections and other difficulties that are inherent in the constitution of society and human individuals themselves. Human institutions are not perfect; I do not think that our legislatures are perfect. There is no remedy that can be devised which will bring about a perfect result; the question is whether its defects are to be less than the present system.

The causes of these defects are partially in the nature of things, the defectiveness of individuals, the defectiveness of jurisprudence generally. But there are also defects in ourselves and in medicine. Medicine is not an exact science. The opinions that medical men give in courts are largely based upon judgment and experience. We can only have a perfect medical jurisprudence when we have an exact medicine; that seems a long distance in the future. In view of the fact that medicine is in an inexact state, some subjects almost chaotic, with wide divergences of opinion, we should approach the subject of a remedy with very great care, and an attempt to make a wide and sweeping departure is very ill-advised. We do not know exactly what the truth is in a great many cases, and even though we may agree on the major proposition in a given case as to where the truth lies, there may be a large number of minor propositions admitting of a wide difference of opinion. As long as this is the case it does not behoove us to set ourselves up as judges in a court of law. We do not know enough about medicine yet to do it; we have to improve medicine very much before we can take such a strong ground.

I now pass to a consideration of the remedies which are proposed. These are naturally divided into different classes: those which, according to the continental system, would limit the function of the jury; would make really a jury of experts, not subjecting their opinion to cross-examination, but the jury to take their decision on that part of the case as final. The other system, as has been recited in the bill from New York, and the one from Illinois, consists not in sweeping away cross-examination—limiting it somewhat perhaps as in the case of the bill

from New York—but simply changing the manner in which experts are to be summoned; giving them some definite standing; providing for compensation for these experts, and doing away, so far as possible, with bias among them.

In this respect I agree with the bills that have been presented, but I shall never give my consent to any other step in this direction until that has been taken.

As to this New York bill, it does not seem to contain any definition of expert testimony. That would seem to be an important omission. What is expert testimony? Is it opinion testimony; if so, where does the difference between fact testimony and opinion testimony come in? Lay persons give opinions in court; they can give an opinion in most of our States as to the insanity of a person. "Do you think such a person was insane?" It is perfectly competent for any witness to answer that question.

Then, there is absolutely no provision in this bill for another exceedingly important testimony; that is, shall a person who is previously in possession of facts be allowed to give opinions as well? It is proposed to summon into court medical experts, presumably not familiar with the facts in that particular case. (This is provided for in the Illinois law by hypothetic statements.) A man makes a postmortem examination; he is summoned into court, and his opinion, as well as the recital of the facts of the postmortem, are asked for. Perhaps his opinion is more valuable because based on things he sees at the time; better than any subsequent opinion formed by hearing a relation of the facts. In this New York law we are met at once with that question: Shall a man who has previously examined a patient (a blood stain, or the contents of the stomach) be allowed to give his opinion under this law or not; or shall the opinion on the case be solely confined to these experts? Under the New York law the hypothetic opinion can alone be given experts who are all summoned. It seems to me that this is a fatal defect in the drafting of this bill.

Dr. Hughes—Have you been asked on the witness stand to give your opinion hypothetically, and then, in a second opinion, to give your opinion upon all the hypotheses in the case, as well as upon your own information?

Dr. Moyer—In Illinois that is a very common form of question. When a postmortem examination is made there may be no man accused, and no man on trial. Is the man who makes that postmortem examination to go into court, and give his opinion as to what the cause of death is? That opinion is formed long before anybody is arraigned for trial. Shall he give that opinion?

Dr. A. Walter Suiter—That is what he made the postmortem examination for.

Dr. Moyer—It seems to me, that this is one of the defects in the bill; that a person may be liable to be put in possession of facts long before a trial, for instance, the direction of a bullet wound, the facts of postmortem examination; a stomach is submitted to a chemist for examination, perhaps under the suspicion only that there has been foul play. There is no case in court, there is no man arraigned. Then a man is summoned as a fact witness, and he states what he found at that postmortem examination. Is he to be permitted to give his opinion? It seems to me that that class of testimony is shut out by that bill, and that is the most valuable kind of testimony that comes into a court of law; the opinion formed at the time of personal examination.

Regarding the view of the matter brought out by Dr. Crothers, I think he carries his opinion as to the effect of inebriety too far.

He says that experts are required to make yes and no answers to leading questions. There is no court in any State of the Union where such a practice prevails. He can qualify his answer until his exact idea is placed before the jury.

Dr. Rohé—I am much more favorably disposed toward this Act of the New York Legislature that was not passed than Dr. Moyer seems to be. However, it does not cover the subject fully; an additional section would be advisable.

During the past winter it has been one of my duties, as a member of the Committee for the Baltimore Neurological Society to prepare amendments to the Maryland Code, so far as relates to lunacy. When the criminal procedures are against lunatics, or in the cases of suits against lunatics, there are certain means by which the defense of insanity may be brought before the court and tested. It was proposed in these amendments to authorize the court in any case where one was accused or on trial, that the court should be authorized to appoint a commission of three physicians qualified and advanced in medical science, and experienced in the treatment of insane persons, who should go into court and hear the testimony (if it be that the trial were going on), and then consider the testimony, and report to a court, under oath, their findings. If they did not agree, or if the court for any reason were satisfied with the findings of a commission, the court may discharge that commission and appoint another commission, or revert to the old established form of inquiry by a jury. The object was to get a report which was the expression of all the members of the commission, and that that commission could be cross-examined by either the prosecution or the defense. It was not a prosecuting commission or a defense commission; it was a commission of the court itself.

I rather decidedly object to bringing in any question of civil procedure. When a question of money is involved, the person who can get the best lawyers and the best experts, can win the case.

But here is a case where an individual's life is at stake; where the person accused has no money; where the State has to pay expenses. The State ought to select and be responsible for the expert testimony in this case.

Dr. Marcy, of Massachusetts—In Massachusetts we are suffering, perhaps more than any other State, from the necessity of reform in this respect. The best men in Massachusetts will not appear as experts in courts. I myself have refused to go into courts except in the defense of another practitioner. I only express the opinion that is common in our State. I am glad to tell you that the legal profession feel it themselves as strongly as we do that something must be done to correct the abuses which have arisen.

In a discussion we had in Boston not long ago the judiciary of the State met some of the very best members of our profession, and this seemed a common ground upon which to meet: that the judges themselves should have a large power in selecting the class of medical experts who should be considered as a sort of judicial body, to which these questions should be referred.

Dr. H. S. Drayton, of New York—For several years past the Bar Association of New York has been discussing this subject; the Society of Medical Jurisprudence in New York City, also the Medico-Legal Association, and by reference to the proceedings of either of those societies it will be seen that for the last four or five years this matter has been one of constant discussion. It has been under the consideration specially of a commission, and every year at Albany the matter is brought up for discussion in some way.

The matter of a commission appointed by the court in each case seems to be chiefly favored, and yet that is not universally approved. Some favor a commission appointed by the State, but politics would be likely to intervene.

With regard to the giving of testimony in court, I have had a little experience, and I have never been very badly used or abused by lawyers. I remember that celebrated case of Carlyle Harris. Nearly every great man, every physician who stood before the country as an expert, as eminent in his department of particular service, was very seriously treated by

Dr. Sullivan, the prosecuting counsel of the city. Dr. Sullivan, having a good medical education, used his knowledge as far as possible for the purpose of mixing up the professional witnesses, and seemingly did it very successfully. However, I think that Dr. Wood and the other physicians did not suffer very much in the opinion of the communities at large, for the reason that the common sentiment is not so much in favor of the lawyer side of the subject as it is of the medical side.

In regard to answering questions yes or no, a hypothetic question was given to me in a case in Newark, N. J., in a murder case. I had had an opportunity to examine the accused very carefully, and told the lawyers who wished me to testify just my opinion, in fact I wrote it out very carefully and said, "If you are satisfied that that opinion, if ventilated in court, will meet your requirements or your wishes, I will testify." In New Jersey the witnesses in these cases are paid for by the county, and it is not a matter of a fee from the defendants. I testified there, and at the close of my testimony a hypothetic question was administered. I think it was about five minutes in length and I was required to answer "yes" or "no." I answered it practically "no," but I turned to the jury and made a statement. The counsel for the prosecution endeavored to stop me. Then I turned to the Court: "Your Honor, may I be permitted to answer this question in my own way?" He said: "Certainly; by all means explain your views to the jury." In that case I was the only physician on that side who received a fee; my bill was honored without any discount.

In New York I have pursued the same policy; when invited to be a witness, or take part in any case, I have examined the accused, examined into the case, and written out an opinion, and I would suggest that that is a capital thing to do. Your attitude in regard to the case will be clarified, and you will be understood as representing certain opinions.

DR. BISHOP, of Pennsylvania—The question that concerns us most is in regard to the selection of these witnesses, whether these experts should be permanent officers or only chosen for the particular time. I have seen a good deal of legal testimony, having been interested in a good many contests, and I find the great trouble is that the physician when he gets upon the stand is inclined to make a speech. Doctor, preacher and lawyer, when they get in the witness stand, think it is an excellent occasion to air their knowledge and try to make a speech. If they are asked a hypothetic question, and then asked to answer "yes" or "no," all they have to do is to say they do not understand it. If you do not understand a question make the lawyer explain it.

DR. MOYER—Dr. Drayton refers to some difference of opinion as to how these commissions should be appointed, or as to how long they should remain in force. There has been none between those who have taken part in discussing this question. None have ever favored a permanent commission. That is what we know as the continental system. We agree that the best method is the appointment of separate experts by the court for each case.

DR. SUITER—We in the State of New York do not force this bill, and simply want to correct it so as to cover every detail. We are ready to receive suggestions at any time. This is in the hands of some of the most competent experts and alienists in the State of New York, and we are making a determined effort to have this matter corrected in some degree. The question as to whether civil cases should be included in this bill, came up, and for reasons which have been very well stated by Dr. Rohé, the civil cases were left out. We thought this bill would be an entering wedge and there could be subsequent legislation when the proper time came for it.

Dr. Drayton was incorrect in his statement that this subject was being constantly brought up in Albany. I have had charge, more or less, of medical and medico-legal legislation for a great many years in the State of New York, and this subject has not been brought before the legislature during that time. There is no dispute in reference to the method of appointment, so far as the State of New York is concerned, and everybody is agreed that the appointment should be made by the court and the county bear the expense.

DR. HUGHES—It often becomes necessary for what are sometimes termed speeches to be made by the medical expert—that is, the elaboration and elucidation of his testimony. No medical expert on the witness stand is obliged to suffer himself to be confined by attorneys to a categorical answer, and whenever an expert permits it, when his meaning can be further elucidated, he puts himself at the mercy of the attorney against him. It is a favorite method of attorneys with experts on the witness stand to propound questions which they think admit only of a categorical answer, and secure only such answers; or questions which they wish to have answered only categorically. The medical expert should always be on the alert for that kind of interrogatory, because it is always the business of the lawyer to make the witness *his* witness; his questions are always so framed, if he be an adroit attorney, so as to favor the point which he wishes to elucidate. It often becomes necessary, then, for the expert to decline to make a categorical answer, and to so frame his answer that it can not be misunderstood, and if this involves making a speech, then he should make that sort of a speech. When I was young in psychiatry and the guest of Dr. Isaac Wray, he told me: "Some day you will be called into court, and I will tell you one thing from my experience, and that is, never to permit a lawyer to compel you to give his kind of an answer, that is, a categorical answer when you know that science requires a more elaborate answer." I have never followed any other rule. I do not think it is necessary for a medical expert, who knows the subject upon which he is testifying, to be outwitted by a lawyer. Of course, if he does not understand his subject up to the degree of enlightenment which his day affords, he ought not to go on the witness stand; if he does so know it, there is no danger of any lawyer knowing more than he does.

I would say that this was an enactment proposed, with this additional qualification put right here in the ninth line (referring to copy of New York law proposed):

"The presiding judge before whom such trial is had may appoint such experts as he may deem necessary to adequately represent both the prosecution and the defence,"

"Not by the recognized legal right of both prosecution and defense to such additional expert testimony as they may deem, with consent of the court, essential to the maintenance of their cause," etc.

A man who is on trial for his life is entitled to all possible defense, and no one can deprive him of the right of summoning individuals to testify in his behalf. If this right were attempted to be abridged by statute, it would have to go to the supreme court, and it would be declared unconstitutional.

In our State the law is defective in regard to compensation, because you can get such expert testimony as you are able and willing to pay for, and the State has to rely on voluntary expert testimony. Thus the State is crippled in prosecuting the case.

We ought to favor this enactment, because it is a step in the right direction, and it does not complicate the question of expert testimony very much. The legislature should have their attention called, and it is proper that this body should call their attention, to the fact that there are glaring defects in the provisions as to the qualifications of medical experts.

Operation and Cure of Perforating Tumor in the Duodenum.—Landerer reports the first case of this kind on record in the *Mitth. a. d. Gr. d. M. u. C.* No. 2. The usual difficulty is in the clinic diagnosis, but whenever an ulcus ventriculi perforatum is diagnosed and the operation discloses nothing wrong in the stomach wall, the possibility of a duodenal tumor should be borne in mind.—*Wien. K. Rund.*, No. 33.

INTOXICATION AND INSANITY.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-seventh Annual Meeting of the American Medical Association at Atlanta, Georgia, May 5-8, 1896.

BY J. T. SEARCY, M.D.

TUSCALOOSA, ALA.

I will be glad to limit the meaning of the word intoxication, in this paper, to the injurious effects on the cerebrum of toxic agents present in the circulation. Toxic agents in the blood, of course, have their chemic effects upon other structures, but in the ordinary interpretation of the word, the symptoms of intoxication are those that belong to the brain. I will use the word in that sense.

This organ is exceedingly sensitive to the action of certain agents; so much so, in certain instances, that it seems to be the only organ affected, or affected so far in advance of others that their disturbance is not appreciated. The exceedingly soft colloid character of the functionating central parts of its nerve cells and fibers render them the most sensitive of all the structures of the body to some agents; and their excessively rapid functional motion is most delicately disturbed.

The nervous system, indeed the whole body, may be divided into sensating and non-sensating structure. This is only a fact in a comparative sense, because there are no defined limits of the property of sensibility anywhere in the living world. The broad generalization is commonly admitted, that all *living* structures are more or less sensitive. In biology there is an advance of grade in this property as we ascend in the classification of species. Within the body of man the property is more decided and distinct in some organs and parts than in others. The nerve centers particularly have it as their function, and, among them, it improves in delicacy and distinctness until we reach the cerebrum, where its most refined excellence is called consciousness. In man, so "centralized" is the faculty, that all conscious action may be said to be cerebral. Sensibility in the human being is carried to such a degree of centralization that the cerebrum is practically the only sensorium. It is the organ of all "feeling," the physiologic *ego*. The recognition of this as a physiologic fact will explain many phenomena of the brain; in that of intoxication it gives ready explanation to many of the symptoms produced.

In intoxication the conscious feeling of the man is affected and subjectively interests him most. His "feelings" are altered, and he is concerned favorably or unfavorably as he is comforted or discomforted.

In addition to being physiologically the conscious organ, the brain is also the organ that adjusts the entirety we call "the man" to his environment. The other nerve centers have also adjustment as their function, but they adjust the organs of the body internally to each other. The brain adjusts externally.

The comparative excellence of structure and function of one man's brain makes him excellent in his external activities, and the comparative weakness or defectiveness of another man's makes him less excellent or competent. We judge of the integrity and functional capacity of this organ by the *emissions* it makes, which in the aggregate go to make up the exhibitions of the man's intellectual capacity and constitute what we call his conduct and character.

We judge, therefore, of the effect of a toxin and of the degree of intoxication by the man's recital of his own "subjective" feelings; and we judge "objectively" by the "symptoms" shown in his brain's emissions. The symptoms of intoxication have been discussed in medicine since medicine first began. Because it relates seriously to the transcendently most important organ in the body, it is a live question.

There are a great many agents that act intoxicatingly. Some enter the circulation from within the body, are produced there; others are introduced from without.

We hear much said now-a-days about *auto-intoxication*, by which is meant the intoxication that is produced by toxins produced within the body. The unqualified word intoxication popularly means the series of symptoms produced by alcohol, or some other such agent, introduced from without.

The word *insanity* is more properly a popular or a legal term than a medical one, which fact occasions the trouble often found by doctors in giving a medical definition to it for legal use. Legally, insanity relates to conduct alone, and not especially to the brain condition that produces it. The gradually increasing popular recognition of the fact, however, that all conduct, good and bad, excellent and defective, depends upon brain condition, has led, of late years, more and more to the popular and legal reference of all cases of defective conduct to the medical profession, in the same way other defective functions are referred to them.

Properly, because it is a legal term, insanity simply means that the person has reached such a *degree* of aberrant conduct that he has to be supported, controlled or restrained by others, or by the State—he is disabled to that degree. It is always a question of degree and a matter of opinion. The doctor's opinion is taken as of most value.

Insanity indicates an *extreme* degree of cerebral defectiveness, which implies that there are other grades of impairment above the insane level. This is a fact open to every day verification, and it is a fact particularly related to the subject before us. Intoxication can be shown to be the cause of different grades of defective conduct ranging all the way upward from the insane level.

Cerebral intoxication varies in the person according to two factors or sets of factors; the first is the character of the agent and the amount of it in the circulation; the second is the peculiarity of the particular brain, peculiar in the way of being more or less sensitive to the particular agent, or peculiar in the way of being inherently defective, which abnormality is rendered more apparent by the action of the toxin. In other words, intoxication varies according to the toxin and the dosage, and according to the abnormality or idiosyncrasy of the particular brain.

Subjectively considered, by the man himself, the toxin produces discomfort or comfort. This is the direction in which he first considers it or principally considers it. In the action of many, probably of most toxins, the sentient result is that of less conscious activity, which means less sensation, or a more comfortable state.

Consciousness occurs only when there is functional action going on in the cerebrum; when there is no cellular motion, there is no consciousness; this occurs naturally in sleep and artificially in anesthesia; when the brain is partially rendered less capable of functionating by the chemic action of a drug, there is diminished sensibility—more comfort. Comfort is a

negative condition, meaning no discomfort. Discomfort is a constant or most frequent condition of many brains to whom all cerebral or bodily effort is more or less painful. Cerebral hyperesthesia is a very frequent condition as a part of neurasthenia or cerebrasthenia. In this condition, the over-sensitiveness, in time, is increased by the injurious or chemic effect of the toxin. If the agent simply stiffen or slightly harden the delicate structures so as to prevent or to make less their functional activity, it produces less consciousness—more comfort. This varies with the character of the toxin, but in time produces hyperesthesia or neurasthenia.

In intoxication there is more or less a sense of incapacity, dullness and confusion; sometimes, a more comfortable state because there is lessened sensibility. Sometimes, on the other hand, cerebral effort or activity produces more discomfort, so that, as a sequel to continued intoxication, comes hypersensitiveness with irascibility, irritability, forgetfulness and worry; all exhibits of cerebral impairment. If the person is naturally erratic or peculiar or hypersensitive, he is rendered more so. A cerebrum tending already toward hypochondria, melancholia, mania or paranoia, is more inclined that way. In short, intoxication always injures the cerebrum for the time being, sometimes permanently, and in certain persons increases original defectiveness to the permanency and grade that is called insanity.

Toxins, such as ptomains, leucomains and other toxic albuminoids, arise from the disintegrations of disease in the system; and there are also natural waste products which, if retained in the circulation, prove highly toxic, such for instance as are eliminated by the kidneys, the liver, the bowels and the lungs. Infection comes into the circulation from many directions; the scavengering of the system is most important work on that account.

Microbic disintegration of cerebral structure proper is not often seen. Inflammation of tubercular bacilli occurs in the meninges, and other meningeal inflammations are said to be microbic; cerebral syphilis may be this. Upon the true functionating structures of the cerebrum, however, microbes most often have no direct, but indirect effect by the toxins they produce elsewhere.

Diseases affecting the general system, like the exanthems, fill the circulation with toxins. Some brains are very sensitive under these conditions, and delirium is a consequence; there are always more or less confusion, dullness, listlessness and incapacity, as a consequence of such intoxication. In the extreme of life, *in articulo mortis*, the complete arrest of cerebration from this cause, in a large number of cases, removes the pain and distress of dying.

Cerebral toxicity, from disease in different organs of the body, varies with the organ. Diseases of those organs, whose function it is to remove waste toxic material, are always serious to the brain. The kidneys, liver, alimentary canal, lungs and skin, are organs of this character. We often have the unremoved waste toxins of the system in the blood added to those directly produced by the inflammatory disease of the excretory organ. Acute rapid disease of such organs often produces delirium; more chronic disease for this reason sometimes gradually induces the more permanent condition of insanity. The delirium and the insanity indicate, usually, brains already sensitive, weak or defective.

In an insane hospital, where the worst cases of defective cerebra are found, it is very easy to note the effects of auto-intoxication. The part the digestive tract plays in the rôle of insanity is often very evident. In conditions of certain forms of dyspepsia, particularly in conditions of constipation or torpidity, auto-intoxication can be shown, and its relief demonstrated by removing the toxin by cathartics and alimentary disinfection. Stercoremia, copremia, and the common condition, "biliousness," afford instances of it.

A large proportion of the insane suffer from some form of nephritis, and to it can be traced many of their more insane periods or "spells," when the already weak or defective cerebrum is made more aberrant by uro-toxicosis.

Toxemia in women, during gestation, and after their confinement, during uterine involution, especially if there is sepsis, and during lactation, is by no means an uncommon thing. Puerperal mania or insanity in some form, is a result in extreme cases. It is a rare thing that the parturient woman shows no signs of intoxication in some of its milder forms.

A long chapter could be written on auto-intoxication. Literature on this subject is getting more and more abundant. I have said enough to show its importance as it relates to insanity.

Intoxication by agents introduced from without is a frequent occurrence and, as it relates to brain hygiene, is little appreciated.

As physicians, we would be very much handicapped in our practice if we did not have cerebral toxins among our medicines. They constitute a very popular line of drugs; popular with the doctor, because popular with his patient. All anodynes and anesthetics are of this class. Most frequently, the urgent symptom to be relieved in our patient is pain or discomfort. Pain is a brain condition. If disturbed or disintegrating action in distal parts can not be conveyed to the sensating brain by nerve lines that we have rendered incapable of transmitting by our toxin, there is no sense of it; or, if we render the cerebrum unconscious by our toxin, we accomplish the same object, there is no pain. We accomplish artificial anesthesia with such an agent as chloroform by a complete suspension of cerebral functions, while the functions of the lower centers, which adjust internal actions, are left to continue. If we push the anesthetic farther we suspend them also, fatally to our patient.

Toxins nowadays are known also to have injurious effects upon peripheral nerves. Peripheral neuritis is now ascribed most often to this cause, in conjunction with exposure, fatigue, or some such condition which renders these nerves more sensitive to the toxin. Peripheral pains, such as make so prominent a symptom in grippe and dengue, probably have this source—headaches, sometimes.

I believe it is true, under certain conditions or with some toxins, toxicity can be of the peripheral nerves at the same time and by the same agent that the cerebrum is affected. The difference between an anodyne and an anesthetic may be this; the one affects more generally the nervous system, the other principally the cerebrum. This distinction is necessarily not well drawn. It is a good hypothesis, however, that anodyne or anesthetic effect in the relief of pain or discomfort occurs by the arrest of the function of the transition of motion along nerve lines or, most fre-

quently, by the arrest of conscious motion in the cerebrum. The anodyne, cocain, administered hypodermically, hardens chemically the nerve lines leaving the locality, so there is no transition of motion to the sensorium from the part, and no pain; though later, we have its anodyne effect on the cerebrum, obtunding in a general way the sense of disintegrating action, or pain.

The effects of alcohol, on the other hand, generally begin in the cerebrum; though we do have local anesthesia in the stomach, and in time, in some cases, neuritis in the periphery as an effect of it. We may correctly suppose that whenever we arrest or abate pain with a toxic agent, we do it most often in the brain by hardening the axis-cylinders of nerve lines, or the central part of nerve cells, in this way preventing or lessening their functional motion. A good deal is being written to show the changes in the nerve cells of the cortex, in the way of enucleation, diminution in size, and changes in length and shape of processes by the continued use of certain toxins. Degeneracy of axis-cylinders in nerve lines elsewhere is also reported. The cerebrum (the sensorium) is the most important organ that suffers; it is impaired by the excessive or the continued use of anodynes and anesthetics, in numbers of instances.

In many persons the effect of the continued use of such agents on their peculiarly susceptible or defective cerebra is so injurious as to increase the original condition of over-sensitiveness to neurasthenia, or to carry their original defectiveness or weakness to the stage of permanency and degree called insanity. The continued use of such agents as luxuries, because of the artificial comfort they give, works wide-spread harm. The popular and extensive use of alcohol and nicotin as luxuries, not to mention other toxins, leads to increase of cerebral and neurotic defectiveness and disease and, in some, induces the extreme cerebral condition of insanity. A narco-maniac or an inebriate, in the large majority of cases, has had an original defect of brain, preceding his drink habit, that has been rendered more decided by repeated intoxication. The brain is a very much abused organ, and one sorely omitted in our private and public sanitation. In the use of such agents as luxuries, the brain effect is the one sought after, and in proportion to the amount taken and the length of time, injury is done. Intoxication, owing to inherent peculiarities, is more injurious to some brains than to others.

DISCUSSION.

DR. FREDERICK PETERSON of New York—I think this question of intoxication as the cause of insanity bears strong testimony to the progress of psychologic medicine of late years, because of the increase in the number of the cases which are put under the heading of toxic insanities. Formerly by toxic insanity we meant merely alcoholic insanity, or insanity due to lead and other poisoning, or cases of bisulphid of carbon poisoning, etc. But since the investigations in regard to the toxins manufactured in the body, we have come to look upon a large number of other cases that were formerly considered idiopathic or without etiology, as cases of toxic insanity. Beside, I think it is now pretty well believed that many cases of recurrent and of acute mania and cases of melancholia and hypochondriasis may properly come under that heading. The means of discovering whether it was really due to auto-toxicism are not always efficient. In certain cases that are due properly to putrefactive or fermentative changes in the intestinal contents, we have the means of ascertaining, sometimes by testing the urine. Usually the discharges from the bowels give no particular evidence of auto-intoxication, although in cases where there is intestinal intoxication we do sometimes find that there are periodic attacks of gaseous diarrhea. Our chief proof, however, of this probable etiology of many cases of melancholy and mania, is in the treatment by intestinal antisepsis and diet. I think the chief means of treating these cases is by a properly regulated diet, milk, vegetables, etc., by the washing out of the stomach and intestines with hot water, and by the use of certain antiseptics, like salol, given in fairly large doses, two hours after meals. I have found that remarkable success could be attained by such means.

CONTROL OF TUBERCULOSIS FROM A STRICTLY MEDICO-LEGAL STANDPOINT.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5–8, 1896.

BY CHARLES WILSON INGRAHAM, M.D.

BINGHAMTON, N. Y.

How far can legal measures, whether municipal, State or National, be carried to control tuberculosis? This is now one of the leading questions before the medical profession in this and in other civilized countries. That decisive legal interference will be necessary before tuberculosis can be brought under control, there is no doubt. In the minds of all, physicians, legislators and tuberculous invalids themselves, who have given the question more than ordinary thought, the necessity of legal control is realized. It is estimated by competent authorities that 450 persons die every 24 hours in the United States from tuberculosis. A disease which is responsible for a human fatality so large and so continuous should be classed with dangerous contagious affections, as one requiring the strictest hygienic management designed to minimize the infection arising from each individual case. No one expects to obtain a complete destruction of tubercular infection as it is generated, and only a comparative control of the infection may be expected at best. The medical profession is unanimously agreed that it is not the tubercle bacillus alone which is responsible for the immense mortality of tuberculosis. It has been proven repeatedly that a certain percentage of human beings are more or less completely immune against tuberculosis, and such may be repeatedly exposed to the infection of the disease in a concentrated form and still escape contracting it; while again a certain percentage—and unfortunately it is a much larger percentage than the former instance—become affected from comparatively slight exposure to infection. So, therefore, constitutional idiosynocrasy, not always synonymous with constitutional degeneration, is an important factor, though tuberculosis can not develop even in the most susceptible without the presence and activity of the tubercle bacillus. It will require generations, even though the most corrective modes of living are carried out, to eliminate hereditary tendencies to tuberculosis to a noticeable degree, and the most that we can do in this generation is to initiate a movement in the right direction and leave future generations to do the rest. What we can not do as regards decisive constitutional improvement, we can do as regards the infection of the disease.

The question is, how far can the Government carry legal measures designed to control tuberculosis, and not infringe upon the natural rights of American citizenship. We can not, nor is it necessary to treat

the tuberculous patient as though he were a leper, but we can, I believe, form and apply a legislation which shall be just to the consumptive and the public, and at the same time have the desired effect of controlling tubercular infection.

There is scarcely an intelligent person of the present age who does not thoroughly understand that tuberculosis is a contagious disease, but for all this the public at large do not seem to comprehend the necessities of the situation with the keenness that they appreciate the contagious nature of smallpox and diphtheria, and until they do we can scarcely expect them to make any decisive changes in their present customs regarding tuberculosis. Tuberculosis is such a common disease that laymen, as a rule have but little fear of it from a contagious standpoint, and look upon those who demand that strict means be employed to destroy the contagious elements as alarmists, or as individuals who wish to increase the misery of unfortunate invalids. At the present time there is little encouragement returned to those who endeavor to inform consumptive invalids of the dangers which they, through carelessness, expose others. That the majority of consumptive invalids are a danger and menace to health and life in their respective neighborhoods can not be doubted, and yet it is easily possible for them to overcome any and all dangers. Intimate knowledge of the disease fosters intelligent action and coöperation. Therefore it should be the effort of every physician to do all in his power to disseminate appropriate information among his tuberculous patients.

With this brief introduction I will come at once to the main consideration of my paper, namely, what legal measures are necessary in order that we may immediately effect a reduction in the prevalence of tuberculosis, eventually gain control of it, and finally exterminate it; that is, exterminate it so far as is possible to exterminate an infectious disease. There are *five* measures of leading importance which must be adopted and enforced before we can expect to see tuberculosis controlled.

1. The strict registration at the office of local boards of health, whether country, village or city, of all residences in which consumptive invalids reside, in order that such residences and surroundings may be thoroughly disinfected after the removal of such invalids, before the house, apartment or room is reoccupied.

2. Systematic monthly inspection of all factory employes, to exclude from factories tuberculous workmen, which is necessary, not alone as a means of protection to fellow laborers, but to increase the chances of recovery of the sick ones who might in their desire, and oftentimes necessity to labor and earn, sacrifice their only chance of recovery. Factory infection is a prominent source of disseminating tubercular disease, and I have in mind several large manufacturing establishments to which I have distinctly traced the cause of many cases of tuberculosis; not to confinement associated with factory work, but to infection deposited in and about the floors, machinery and furnishings.

3. The thorough instruction of all tuberculous invalids capable of affording personal medical attendance. Experience has shown that family physicians have thus far not accomplished as much as might reasonably have been expected, in impressing upon the minds of consumptive patients the necessity of destroying all infectious matter. I believe it is necessary for the health officials to assume the entire responsibility of instructing this class of consumptive invalids in all the details outside of medical treatment, concerning their disease. I think family physicians will welcome the day when the health officials assume this responsibility. It would not in any way infringe upon their professional relations with their patients, and would relieve them of a great anxiety.

4. The next measure I would suggest is the erection of State hospitals for the *compulsory* care, treatment and education of the indigent class of consumptives. By education I mean their instruction in hygienic matters, not alone as concerns tuberculosis, but in every sense of the word hygiene, as applied to everyday life. By the indigent class, I mean those invalids who can not afford suitable medical attendance and necessary medicines, and nourishing preparations upon their own responsibility. Persons who in health would be capable of caring for themselves and families in comfort, might, being afflicted with tuberculosis, become so reduced financially as to be classed in this instance, as indigent. In these State hospitals there should also be *sentenced* by health officials for a greater or less term, according to the seriousness and persistence of their offense; those persons not eligible from financial circumstances, who might persist in carelessly exposing others to the infection of tuberculosis, for without doubt many consumptives who even with a competent knowledge of the infectious nature of their disease would not exert any effort to protect others. Unless the State hospital plan for the care of indigent tuberculous persons is instituted on a National scale, we can not hope to gain any apparent control over the disease, for the majority of such indigents in their ignorance and carelessness scatter sufficient infection to perpetuate tuberculosis, though all other sources were perfectly eliminated.

5. My final suggestion is the extermination of tuberculosis from among dairy and stock herds, in order that human beings may not be exposed to the disease through the medium of meats and milk. This portion of the subject is receiving active attention at the hands of many of the State boards of cattle commissioners and State boards of health, but they are greatly handicapped in their work, and until the measures previously enumerated are attended to, they can accomplish but little to control the spread of tuberculosis among cattle. When the cattle commissioners go into a dairy herd and slaughter one-third, two-thirds or more, as the case may demand, their efforts may be compared to the surgeon who has by active means, healed an external ulcer or sinus due to constitutional causes, without removing the constitutional cause; the ulcer is sure to break out again, and so is tuberculosis in the dairy herd, for it must be remembered that the cattle become diseased principally through the carelessness of human beings, and so long as the present condition of affairs is allowed to continue, the control of tuberculosis in dairy herds will be an impossibility, and all efforts toward such control an immense and unnecessary expense to the government.

This then is the brief summing up of what I believe to be necessary, and I see nothing in any of the five measures advocated which would in any way infringe upon the legal rights of individual consumptives, under the laws of the United States. The medical profession must not wait for the politicians to inaugurate suitable medico-legal measures as regards tuber-

culosis. If we await action from purely political sources we will live to see the ratio of deaths from tuberculosis doubled. The AMERICAN MEDICAL ASSOCIATION, as the greatest representative body of physicians, is an appropriate organization to take the initial steps. There is no doubt as to their abilty to do what is necessary to be done.

SURGERY OF THE NASAL VESTIBULE WITH REFERENCE TO CERTAIN FORMS OF STENOSIS AND FACIAL DISFIGUREMENT.

Read in the Section on Laryngology and Otology, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY ROBERT CUNNINGHAM MYLES, M.D.

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NEW YORK.

The surgery of the nasal vestibule has not received that serious and careful attention which its importance demands. Abnormalities in this region not only obstruct the gateway to physiologic respiration, but also disagreeably alter an otherwise pleasant facial expression. Frequently operative procedures achieve a cosmetic result which were intended only to relieve nasal stenosis. It would be well to define the nasal vestibule as being that part of the nasal fossa which extends inward from the margins of the anterior nares from one-half to seven-eighths of an inch. Nearly all of this part of the nasal fossa is lined with scaly or pavement epithelium, and the balance of the nasal membrane is covered with ciliated and non-ciliated columnar epithelium. Attempts to enlarge the lumen of the vestibule by excision of the surface tissue, excluding a part of the septum, almost invariably produces the opposite results, by narrowing it. The contraction is usually due to the large amount of fibrous tissue in the membranes beneath the pavement epithelium. I have seen many cases in which the patients have been made worse by operations, where the surgeons did not recognize nor consider these principles, and the results were especially bad in those cases where the amateur or persistent rhinologist worked under the theory that the way to make a hole larger was to bore off or excise its walls; but the theory worked with the logic of the Irishman's ditch—"the more he cut off it the longer it got."

In former times when the electric trephine was used much more frequently than now, it was not uncommon to see cases where the membrane, and sometimes a part of the bone, had been removed from the floor of the nose, at the point where there is an elevation caused by that part of the nasal process of the superior maxilla, which extends downward and inward to the anterior nasal spine. In these cases the cicatrized membrane forms in a web-like manner across the floor, and extends from the septal wall across to the outer side beneath the junction of the ala and the nasal process. This condition greatly diminishes the ingress of air and the egress of secretions. I soon learned that any attempts to relieve the condition by cutting or excision only made it worse. I adopted the method of passing a small trephine through the band, along the floor, and afterward inserting a string or a small tube, leaving it in for a few months, until the healing was complete; carrying out the process used in piercing the ear lobes. When practical it is best to leave the tube in place for about six months, until the elements of the tissues shall have become absorbed and fixed. It is a simple matter to remove the bridge-like band by making a section on either side with a Grafe knife, and afterward insert a Berens cork or an Asch's perforated tube for a week or two. The results have been almost invariably good, usually leaving a little excess of elevation of the floor at the point.

I have had three cases of complete occlusion of the vestibule: One the case of a girl 18 years of age, who informed me that her left nostril had always been stopped, and that she had only been able to force a little air through the right side. Examination demonstrated a membranous occlusion about one-third of an inch within, extending from the superior part of the vestibule, near the upper lateral cartilage, down to the floor. There was a pin-hole perforation through the one on the right. After using cocain locally and hypodermically, I cut through the membrane, which was about one-quarter of an inch thick, above and below, put in the rubber tubes, and finally cut away the tissue from top to bottom. I placed three rubber, tubes, successively, side by side, sewed them together, and introduced them into the fossa; they were worn for a few months with most excellent results.

One of the cases was in a man 17 years of age. He was unable to breathe through either nostril, although a little air could be forced through the right one. I opened the right nasal fossa, after the manner described in the other case; the membrane was about an inch thick and extended from the floor to the anterior end of the middle turbinated body; the fossa remained patulous and satisfactory. On the left side, after cutting through the fibrous web in the vestibule, I found that the fossa was obliterated, and the space from the anterior to the posterior nares, and from the middle turbinated body to the floor, was filled with fibrous and cartilaginous tissue. I trephined and cut through about two and one-half inches of solid adhesive tissue; this caused severe pain, the cocain crystals and deep injections did not seem to obtund the parts effectively. I had no trouble in keeping the parts beyond the vestibule open, as they have no tendency to adhere or contract when they are not in contact. The vestibule was kept open by the usual method. The patient's general health improved rapidly; he slept well; the nervous system recovered from an extremely depressed state.

I will not have much to say concerning procedures for improving the general appearance of the nose, for the subject is of sufficient importance to require an individual paper.

There are two methods which are being employed: one, the implantation of metal plates and supports; the other is carried out by cutting or sawing the bones, cartilages and tissues, removing some parts, transposing others, and fixing the parts temporarily with apparatus, until they are permanently fixed by inflammatory adhesions, caused by the fractures or the incision into the parts.

Dr. John O. Roe of Rochester is a pioneer in the latter method, and it has been my fortune to see some wonderfully artistic work which had been done by him.

There is a great field for exercise of genius in the department of cosmetic nasal surgery, and the question as to whether the progress will be made through the surgery of the external nose, or through the vestibule, is to be decided in the future. I think that

the avenue will be through the anteriors nares, on account of the external scarring.

There are certain forms of partial stenosis which are due to deflections of the anterior part of the triangular cartilage within the vestibule of the nasal fossa.

For several years past I have been operating for the relief of this class of vestibule stenosis with satisfactory results. There are two conditions which usually confront us in these cases; first, a projecting anterior extremity of the triangular cartilage, which extends across the vestibular space and approaches the margin of the ala; the second condition embraces the various forms of deflections with more or less thickening of the convex side of the cartilage. Since so many authors have written extensively and advocated various methods for relieving this latter condition, I have decided not to discuss the subject on account of time and the length of the paper that would be required to treat it in a manner its importance demands.

In those cases which come under the head of the first condition, the space between the ala and the projection is so narrow that when inspiration takes place in a rapid manner the atmospheric pressure forces the ala against the cartilage. These patients become accustomed to contracting the muscles on the side and front of the face for the purpose of pulling the ala away from the cartilage. Others sleep with the hand on the cheek, instinctively elevating the ala. This condition may be overlooked, especially when the nasal speculum is introduced, consequently it is well to test the inspiratory capacity without it, with the mouth closed, and also with each nostril respectively closed.

I have attained but little success in attempting to replace this tip by fracturing the convex cartilage in the opposite nostril, and afterward maintaining the segments in position with mechanical appliances until union takes place.

The operation consists of first carefully cleansing the vestibule and then making it aseptic with solutions of 5 per cent. carbolic acid and 1-1000 bichlorid of mercury. After this the anterior part of the fossa, posterior to the vestibule, is carefully packed with bichlorid and iodoform cotton. Extreme precaution is used in regard to asepsis in everything. A perpendicular incision is made about two or three millimeters posterior to the margin of the projecting cartilage. The incision is usually about an inch long and extends down to or near the floor. The perichondrium and the mucous membrane are dissected from both sides of the cartilage, and a piece about ten to fifteen millimeters in length and two to four millimeters in width is removed with great care, especially in reference to making a counter opening in the membrane. I never remove the anterior upper part of the cartilage, which is left for the purpose of sustaining the tip of the nose in its proper position. Delicate knives, periosteal elevators, Dr. Noye's eye speculum, a small needle holder, the smallest size curved needle, and a pair of self-registering rat-tooth forceps are the most essential implements. I have found in certain cases a small knife with short, lateral curve very useful in making the transverse cut for severing the cartilage. The wound is very carefully cleansed, all blood clots and ragged edges are removed and the parts are brought together with very fine silk sutures. In the majority of these cases the wound unites by first intention and the after-treatment consists of filling the vestibule with aseptic cotton, and leaving it in place from two to three days. The results are beneficial from a respiratory sense; the appearance is much improved, and a decided improvement in the quality of the voice usually follows.

Another form of vestibule stenosis, which ought to be placed in the second class, is caused by a deflection, and circumscribed ecchondrotic growth or enlargement on the convex side of the triangular cartilage, can be relieved by this method of sub-perichrondial dissection. In case 3 the atmospheric pressure has caused a depression in the space between the upper and lower lateral cartilages; the stenosis was almost complete when he applied to me about one month since. I dissected out a large growth, which was situated on the septum opposite the depression, and three-quarters of an inch from the margin of the anterior nares. Cocain made the operation painless. The wound was brought together with four stitches; it united by first intention; in five days the dressing was left off and a small glazed line was all the evidence to indicate the place of operation. The stenosis was relieved and the breathing through the nostril was comfortable.

DISCUSSION.

DR. JOHN O. ROE, Rochester, N. Y.—The point that Dr. Myles has made in regard to the ill-advised attempts frequently made to enlarge the vestibule of the nose by cutting out the interior of the passage, is well taken. This procedure invariably results in decreasing the size of the opening instead of enlarging it, for the reason that when a portion of the constriction is cut away, the circumference of the uncut portion is correspondingly lessened, and when the cut edges become coaptated during the process of healing, the lumen of the passage is made smaller. The vestibule of the nose may become narrowed by a variety of causes. In those cases in which it is obstructed by an exostosis which we frequently find in the floor of the vestibule, this exostosis should be removed subcutaneously in order to leave the mucous membrane uninjured, thereby avoiding the contraction of the passage. This is best done by making an incision in front of the eminence down to the bone and raising the mucous membrane together with the periosteum over the entire elevated portion of the exostosis. By cutting through these tissues on the posterior side they can be raised out of the way and the bony growth removed either by drill or saw. When this is completed the mucous membrane of the periosteum can be replaced, leaving the passage of the nostril unobstructed. The vestibule of the nose is often very much narrowed by the collapse or dropping inward of the alæ of the nose from a weakening or partial paresis of the dilator naris muscles, thus allowing the alæ to be drawn inward against the septum during inspiration, thus increasing the obstruction to ingress of air. I have removed this difficulty by making one or two incisions through the cartilage of the ala, and inserting a dressing into the nostril sufficiently large to distend the alæ quite widely until the cut made through the cartilage has become firmly healed and fixed in this position, thereby maintaining the nostril freely open and preventing the collapse of the alæ on inspiration. I was also much interested in Dr. Casselberry's paper on the reduction of spurs of the nasal septum by electrolysis, although I have never employed that method. I have not done so for the reason that I have always disposed of spurs and ridges of the nasal septum by what seems to me to be a very much easier and simpler method—by simply cutting the spur away. If the spur is located on the cartilaginous portion, I employ a suitable small cartilage knife for its removal, and if

located on the osseous portion of the septum I remove it with a saw or the Curtis drill. I have not attempted the more complicated methods because my patients do not object to having these obstructions removed in this manner. In the case of removing a small enchondroma, it can be so easily and quickly done with the knife that if the parts are thoroughly anesthetized with cocain the patient is neither alarmed nor incommoded by the operation, and sometimes scarcely realizes that anything unusual is taking place. In regard to the danger of denuding the parts of mucous membrane, I have never experienced any difficulty in this respect after a cutting operation, if but a limited portion of the membrane is removed. Even in some cases where quite an extended area of mucous membrane is removed, I have observed it from day to day spread over the parts when maintained thoroughly aseptic, so that in a short time the site of the operation, from the loss of the mucous membrane, could not be perceived. After the use of the cautery, however, I have observed extensive scars and areas in which the mucous membrane had been replaced by fibrous tissue, thereby causing much annoyance from the dryness of the nose and the formation of scabs and crusts over the parts in which there were no mucous glands to lubricate the part.

Dr. Max Thorner, Cincinnati, Ohio—I would like to refer to Dr. Myles' paper. The obstruction of the nasal vestibule is by all means the worst thing that can happen after operations. In the operation advocated by Dr. Myles I think we have means to prevent such occurrence. One case I had was that of a young man who had been kicked on his nose by a mule, and there was entire occlusion of the right nostril. I made the incision and occlusion followed, and it was as bad as before, if not worse. Later on I made a flap from the upper lip, turned it upward into the nose and sewed it to the inner surface of the ala nasi, after having loosened it from its adhesions. Then I packed the nostril with iodoform gauze. The result was not an ideal one, but the improvement was great and permanent.

Dr. Hanau W. Loeb, St. Louis, Mo.—I was impressed with the statement of Dr. Myles in regard to maintaining an opening. I remember one case in which there was complete stenosis as a result of smallpox; there was complete adhesion of both edges to the septum. To maintain the opening I used two rubber tubes, which were made after the fashion of Simrock's spectrum. These were worn without discomfort for six months, later being worn only at night, and at present there is a complete opening.

NASAL HYDRORRHEA.

Read in the Section on Laryngology and Otology, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY D. BRADEN KYLE, M.D.

PHILADELPHIA, PA.

True nasal hydrorrhea is an exceedingly rare condition, not being mentioned in many of our works on nasal diseases. It is true there are many conditions which simulate this, but the well authenticated cases are rare. Let us first review the subject as to cause.

No special lesion can be named, the peculiar discharge being present under so many different conditions. It may follow trauma, with escape of cerebrospinal fluid, but probably an injury of that degree would prove fatal. It may be associated with nasal growths, as polypi, but in the one case thus far reported Bosworth thinks the polypi were the result and not the cause. Nerve lesions, as involvement of the fifth pair; this would act in two ways, both nerve influence and blood supply would be altered and the condition would properly constitute a reflex neurosis. Carious teeth and cerebral lesions may be exciting causes in the same way. Malaria in the chronic form; the repeated chills driving the blood to the internal organs and chronic congestion, in addition to the general anemic condition produced, with the necessarily lessened vascular tone, may cause the entire mucous membrane to become cyanotic. Atrophy of the optic nerve existed in at least one case. Hardie quotes seven cases in which optic atrophy existed, but does not give the references.

The cases in which no mention of any circulatory lesion is made and some lesion, as of the ethmoid or antrum existed, does not prove it the cause, as these lesions may be present without true nasal hydrorrhea.

In reviewing the cases thus far reported, it is my purpose to exclude all, excepting those cases, the reports of which include the clinic history, and in which the hydrorrhea existed independently of any associated nasal lesion. After a careful search of the literature on the subject I have been able to collect twenty-seven cases; sixteen collected by Bosworth, with two reported by him; three by C. E. Bean; one by A. R. Anderson; two by Hardie and Wood: one by Keiper, one by Emory Jones, and the one reported in this paper. The following is a tabulated list of the cases thus far reported:

The first sixteen were collected by Bosworth, and the seventeenth and eighteenth were reported by him.

1	Reis	London Medical and Surgical Journal, 1834, Vol. IV, p. 823.
2	Forster	New York Medical Times, 1852, Vol. II, p. 113-115.
3	Elliotson	Medical Times and Gazette, London, 1857, Vol. XV. p. 290; also Brown's Arch., Vol. III, p. 665.
4	Davies	Lancet, 1870, Vol. II, p. 292.
5	Tillaux	Traité d'anat. topograph. Second Edition, Paris, 1978, p. 62.
6	Paget	Medical Press and Circular, London, 1878, N. S. XXVI, p. 432; also. Trans. Clinical Society, London, 1879, p. 43.
7	Althaus	Brit. Med. Jour., 1878. Vol. II, p. 831, also Med. Chir'l Trans., Vol. LII. p. 29.
8	Fischer	Deutsche Ztschr. für Chir., Leipzig, 1878, Vol. XII, p. 369.
9	Speirs	Lancet, 1881, Vol, I, p. 369.
10	Leber	Graefe's Arch., Vol. XXIX, 1. 273.
11	Nettleship	Ophth. Review, London, 1883, Vol. II, p. 1-3.
12	Priestley Smith	Ophth. Review, London, 1883, Vol. II, p. 4.
13	Priestley Smith	Ophth. Review, London, 1883, Vol. II, p. 4.
14	E. B Baxter	Brain, Vol. IV, p. 525.
15	Mathiesen	Norsk Magazine for Laegevidenskaben, Jan. 1877, p. 41.
16	Vieusse	Gaz. Hebd, 1879, No. 19, p. 298.
17	Bosworth	Diseases of Nose and Throat, Vol. I, p. 261.
18	Bosworth	Diseases of Nose and Throat, Vol. I, p. 262-263.
19	C. E. Bean	14th Annual Congress, American Laryngological Association.
20	C. E. Bean	14th Annual Congress, American Laryngological Association.
21	C. E. Bean	14th Annual Congress, American Laryngological Association.
22	A. R. Anderson	Brit. Med. Jour., London, 1892, Vol I, p. 276.
23	C. M. Hardie and F. A. Wood	New York Medical Journal Vol. 52, p. 264-8, 1890.
24	Hardie & Wood	New York Med. Jour., Vol. 52, p. 264-8, 1890.
25	G. F. Keiper	New York Medical Jour., Vol. 58, p 101, 1893.
26	Emory Jones	Ophth. Review, Vol. VII, No. 78, p. 97.
27	D. Braden Kyle	American Medical Association, May 8, 1896.

Bosworth in his text-book very properly divides the reported cases into two classes: 1. Those in which the escape of fluid is passive and painful and which phenomena he explains by involvement of the trifacial nerve. 2. Those in which the fluid gives rise to intense irritation. Yet this does not differentiate as to the irritating nature of the fluid, but is rather a classification as to symptoms and not varieties. A review of the cases reported gives such a variety of causes that a classification would be impracticable.

The history of the case I wish to report is as follows: Two years ago the patient—male, aged 40, first presented himself for treatment. His general condition was fairly good. For about six months he had had a profuse watery discharge from his nostril, which was, when he presented himself for treatment, constant, but which at first had occurred at usually irregular

intervals; sometimes as often as three or four attacks daily. The discharge was clear and profuse, although no definite estimate of amount could be made, the reaction was alkalin; it gave the patient a sensation as of strong salt water snuffed within the nostrils and was very irritant, not only to the mucous membrane, but also to the muco-cutaneous surfaces. The attacks at first were usually preceded by headache and severe sneezing, which came on suddenly and without warning, and were followed by profuse discharge. With the beginning of the discharge both the headache and sneezing were relieved.

An examination of the nostrils during the attack showed the mucous membrane of the anterior cavities swollen, edematous and boggy, often entirely obstructing nasal breathing. The membrane did not present the appearance of acute hyperemia, but more that of a chronic congestion, being of a dull bluish-red or pink tinge. The naso-pharynx and pharynx were slightly involved, but not to the extent of the anterior passages.

On examination between attacks, the mucous membrane, though slightly edematous, was paler, the color apparently being due to a pigment deposed within the cells (which later proved to be the case); the membrane on pressure was soft and boggy, and pressure left indentations, which slowly filled, a characteristic of passive congestions. The naso-pharynx was slightly paler than during the attack. This condition continued for several months, the attacks becoming more irregular, yet more frequent until when he had been under my observation for five months the discharge was almost continuous. The general appearance of the patient was that of a severe attack of hay fever. There was no evidence of antrum or ethmoid disease.

I had the eyes examined, with negative results. I made careful and repeated examinations of the urine, suspecting possible uric acid diathesis, but while the urine was of a rather low specific gravity, from 1.012 to 1.018, the chemic analysis revealed nothing except a low per cent. of urea, but by the increased amount of urine the total daily excretion was from four to five hundred grains. Microscopic examination showed no casts, but many leucocytes, and desquamated epithelial cells, which, from their shape and condition, being water-soaked, evidently came from high up in the urinary tract. During this time, although I had tried every known remedy, he gradually and persistly grew worse. In looking up the literature of the subject, I noticed malaria mentioned as a possible cause, and on questioning the patient, he said that one year before the beginning of the attacks, he had had malaria. I also discovered that before living in Philadelphia he had been in a distinctly malarial district. While at the beginning his general condition was good, during this time he was losing flesh, although not rapidly. I then examined his blood for evidence of malaria.

The blood examination showed, by the Thoma-Zeiss hemocytometer, 4,800,000 red corpuscles per cubic millimeter; white, 8,000. Hemoglobin, by Von Fleishl's hemoglobinometer, was 60 per cent. of normal. There was considerable free pigment. The red corpuscles, while about 3,000,000 showed almost a normal appearance, the remaining 1,800,000 were irregular, crenated and corrugated, some few showed segmentation and the peculiar kidney-shaped corpuscles were present. The leucocytes were normal.

Careful examination did not show much, if any, enlargement of the liver and spleen.

Tube inoculations had been made repeatedly from the nasal secretion and while growths showed many bacteria present, yet never was there present any but what had been found in other conditions, or the ordinary bacteria found in abnormal discharge from the nares. The only one present which is decidedly irritating was the streptococcus, although out of repeated inoculations this particular germ was found only twice and then not in any number, thus excluding bacteria as a probable etiologic factor.

A small piece of tissue was removed from the left nostril, and hardened in picric and chromic acid solution, infiltrated with acacia, frozen and cut. The sections showed a small round cell infiltration of the submucosa, and dilated vessels with thinned walls. The epithelial layer was desquamated, the cells showing cloudy swelling and granular and hydropic change; the connective tissue cells were pigmented.

After the blood examination, as the patient told me quinin made him nervous and irritable, I gave him bromid of quinin, in 5 grain doses every four hours and in addition 1-16 grain of the double sulphid of arsenic, which is a so-called alterative tonic. This treatment internally, with local applications of benzoinol, to which had been added to each ounce menthol 2 grains and oil of sandal wood 3 drops, was kept up for over two months. The patient after two weeks showed slight improvement and at the present time, while not entirely relieved, is comparatively well. The attacks are very slight and usually follow exposure or over-exertion.

From a review of the cases, I think the majority, at least, belong to the second class and that in these if not in all nasal hydrorrhea is a symptom or local manifestation of a constitutional condition. I regard the constitutional lesion as varying, but in the second class of cases, in which the one reported belongs, as usually associated directly or indirectly with some circulatory lesion in which the venous return is impeded, producing in the nasal mucous membrane a cyanotic condition, analogous to congestive lesions in organs, as the lungs, liver and kidney, largely made up of mucous membrane, and not necessarily the site of acute local inflammatory conditions. Mucous membranes, when repeatedly congested, tend to remain so, allowing the leakage of serum into the perivascular tissue which, when near the surface, becomes edematous and the epithelial cells undergo, in their effort to elaborate the excess of fluid, hydropic degeneration; the membrane relieving itself and again becoming infiltrated, accounting for the recurring attacks. Practically the condition may exist in any mucous membrane as is shown in the case reported by Miles, in which this condition existed in the mucous membrane of the intestines. The lymphatic supply may be involed as shown in one of the cases reported by Miles (Trans. Internat. Ophth. Congress, Heidelberg, 1888). Because of the intra-vascular pressure the tissue would undergo simple atrophy and impair to a great extent sensation, and cases with this induced condition must not be confused with those properly of the first class.

Owing to the varied symptoms and etiologic factor, no regular plan of treatment can be formed; but each case must be treated as to cause, and irritation during the attack should be relieved by sedatives.

UNCOMMON ACCIDENTS FOLLOWING OPERATIONS IN THE NOSE AND THROAT.

Read in the Section on Laryngology and Otology, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

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It is now almost ten years that the late Professor Nussbaum commenced his monograph "On Accidents in Surgery" with these words: "Of surgical accidents, avoidable ones as well as unavoidable, there are so many, that if one would attempt to enumerate them all one would hardly know where to begin and where to end. Unfortunately, owing to human vanity, almost exclusively successful cases are reported, while unfortunate events are not published, although one unfortunate accident is often more instructive than ten successful cases." Such considerations have prompted me to report to you to-day a number of accidents following operations in the nose and throat, which have happened during the last eleven years. I do not attempt to enumerate all or even the majority of undesirable sequelæ that I have seen; but I purposely omit all such cases, as are frequently observed and have often been described, for instance lacunar tonsillitis or pharyngitis following intra-nasal operations; acute purulent otitis with or without complications, adhesions forming in the nose, epistaxis, etc. But I shall confine my remarks to a few cases which are rather remarkable on account of their rarity.

Case 1. Functional aphonia, following cauterization of the pharynx for chronic follicular pharyngitis. The patient was a young lady, 18 years old, who was studying elocution. She was referred to me on account of her voice failing during any prolonged attempt at loud reading or speaking. She had a well developed chronic lateral and follicular pharyngitis, and some remnants of adenoid vegetations, in cushion shape, at the vault of the pharynx.

Treatment consisted mainly in galvano-cauterizations, repeated at intervals of from eight to twelve days. One day, after a number of treatments had been given with a very noticeable improvement of the voice, a large hypertrophied follicle, situated nearly in the center of the posterior pharyngeal wall was cauterized, when suddenly the patient said in a whisper that her voice was gone. There was complete aphonia. I was naturally alarmed. Upon laryngoscopic examination the image was found to be the same as in functional aphonia; the vocal cords approximated during an attempt at phonation for an instant, but separated again at once. This condition lasted for a few days, when it vanished almost as suddenly as it had appeared, without any special treatment. There was at no time a recurrence of this reflex phenomenon, although the same treatment was continued for some time, with the result of entirely restoring the voice of my patient. This patient was a strong and healthy young woman, and did not at that or any time thereafter belong to the great army of hysteric women.

Case 2. Temporary amaurosis following cauterization of the nose. Mr. J. H., 40 years old, was under my care about ten years ago for nasal polypi. A great many of them were removed by the cold wire snare. When the nose was thoroughly cleared there remained a few very small ones in the crevice between lower and middle turbinated bodies, which could not be engaged in the snare. I decided to destroy them with the galvano-caustic burner. One day, following such a treatment on the previous afternoon, Mr. H. called on me in great excitement, telling me that he could not see with the right eye, the side operated upon. The eye, upon examination, did not show any difference from the normal; he could discriminate between light and dark, could see objects held closely before his right eye, but could not count fingers at a distance of five feet. Ophthalmoscopic examination was entirely negative. Vision improved after five days and was gradually and entirely restored within four or five weeks.

Case 3. Loss of memory following an insignificant operation in the nose. A boy of about 16 years of age, from one of the interior towns of Ohio, was operated upon for almost complete nasal obstruction. There was a marked deviation of the septum and enormous hypertrophies of the lower and middle turbinated bodies. These hypertrophies were removed at intervals of from four to six weeks, the boy returning to his home after each operation. After two or three operations had been done, without any untoward symptoms, the boy returned for another operation. This time I succeeded in removing but a small piece, the size of a green pea, from the middle turbinated. There was but moderate hemorrhage, but as the boy had just passed through an attack of tonsillitis, I decided not to do any more. I saw him the following day at 10 A.M., found him apparently in good condition, and he left on an afternoon train. When he arrived home about four hours later, he was in an almost absent minded condition. During the night the family physician telegraphed me to inquire what anesthetic had been used. I learned the following day from a letter of the physician that the boy had a high temperature when he arrived, his conjunctiva were hyperamic, pupils dilated, he was complaining of headache, and above all was absolutely unconscious of everything that had happened since he left home. The pain and fever subsided within two days; the pupils became again normal; but the loss of memory remained for about six weeks, during which time his mental activity was very much impaired. Gradually during the course of the next two or three months, all his mental faculties returned, although the memory remained sluggish for some time. When I saw him several months thereafter, he was in perfect health and his parents had the courage to have the treatment continued, which was thoroughly successful without any further accident.

Case 4. Intubation in an adult followed by a fatal edema of the larynx after extraction of the tube. J. B., 18 years old, had been suffering eight years from what was considered asthma, the dyspnea having increased of late to an alarming extent. The history was entirely negative; syphilis could not be traced. The patient appeared to be in great distress. His respiration was labored, noisy and accelerated; on exertion his face had a livid color and was covered with a cold, clammy perspiration. The stenosis of the larynx was extreme. The ventricular bands were greatly thickened and the vocal cords buried in masses of infiltrated tissues. The encroachment on the lumen of the larynx increased in the subglottic space, the opening for breathing being scarcely the size of a thin lead pencil.

The smallest tube of the intubation set for adults was introduced without any difficulty. It was well oiled and the larynx had been previously anesthetized with a 5 per cent. solution of cocain. The tube is somewhat larger than the largest tube of the set used for children. The patient could readily breathe through the tube and complained of no pain. It was my intention to permit the tube to remain in the larynx for twenty-four hours, but on the following morning, about fifteen hours after the introduction, the patient returned and begged me to remove the tube. He stated he was greatly annoyed by it and could not take any food whatever. I extracted the tube without any difficulty, with the understanding that it was to be reintroduced in the evening. The patient was greatly relieved, was able to take some water, and left my office after a few minutes feeling comparatively comfortable. About fifteen minutes later he was found dead on the sidewalk, about a half square from my office. He had walked about one and a half squares when he felt bad and asked the driver of a passing wagon to take him to my office. Scarcely had he been seated when he fell back and died before he could be lifted from the wagon. A physician who happened to pass there shortly afterward found no sign of life.

The unfortunate accident can be easily explained. After the pressure exercised for fifteen hours by the tightly fitting tube upon the infiltrated tissues had been suddenly relieved a subglottic edema ensued causing a fatal issue within a short time. This rather unusual case teaches us a lesson to keep a patient upon whom intubation for a chronic stenosis has been practiced, under strict surveillance for some time after the extraction of the tube.

Case 5. Severe spasmodic cough and neuralgia after a nasal operation. Miss B. K., aet. 24, consulted me on account of excessive sneezing which had been troublesome for several years, but had become well-nigh exhausting of late. The anterior and lower portion of the left middle turbinated was enlarged to almost the size of a cherry, of a deep purple hue, and touching the septum. Upon the lightest touch with the probe an excessive fit of sneezing was sure to follow, which would immediately stop after the application of a 4 per cent. solution of cocain. This hypertrophy was removed with the cold snare. One half hour after the operation the patient had a most severe attack of coughing, a symptom which was

entirely new, and not long thereafter a most intense neuralgia of the left side of the face developed; nothing short of morphin and chloral hydrate would give her rest during the following night. The neuralgia lasted for several days when it gradually disappeared, while the spasmodic cough vanished only after two and one-half weeks. There was no local condition present that could account for it, the wound having nicely healed without any disturbance and without further interference. There was afterward no return of these symptoms, nor of the sneezing.

These few cases are reported simply for the reason that they appeared to me somewhat unusual. In fact all of them at the time, when my experience was less, were rather alarming, although fortunately, with the exception of the fourth case, they ended well. Yet, as any one is likely to meet at any time with accidents which are not common, and which can not be expected according to our usual experience, I thought these cases, collected at random from my note book, of sufficient interest to be placed on record.

DISCUSSION.

DR. J. E. LOGAN, Kansas City, Mo.—I have had some experience similar to Dr. Thorner's. My patient was similarly affected with this extreme irritability of the nostrils and experienced a great deal of the same trouble of excessive sneezing. I only refer to the case to make this suggestion, that in most of these cases the focus of irritation is in the anterior chamber. I have found that the application of the galvanic cautery to the middle turbinate has brought me better results than complete or partial removal with the snare. In this patient I removed considerable portion of the middle turbinate and packed with iodoform gauze, and for several months afterward the patient had a disturbed sense of smell. He was troubled with the odor of iodoform for months. It disturbed me, and while in New York I had him go to a friend of mine and he confirmed my opinion that it was due to the very nervous temperament of the patient. The sneezing did not return, but the perverted sense of smell remained for six or seven months.

Accidents liable to happen as the result of operations in the nasal cavity are many, for the reason that the nose and throat, especially the laryngeal cavity, are the seats of great reflex action, more so probably than any other cavity of the body and I am not surprised that the removal of the enlarged follicle was the cause of the aphonia. I have found the cause of this sudden aphonia to be very hard to explain. In the case in which there was involvement of the cords without loss of muscular power it would lead me to suspect hysteria; the cords would be under the control of the patient to a certain extent. I have had this experience with hysteric patients.

DR. W. E. CASSELBERRY, Chicago, Ill.—I wish to say in support of Dr. Thorner, that I believe one may have temporary impairment of the voice reflexly produced by operations on neighboring parts independently of a suspicion of hysteria. In one case of combined operation for tonsils and adenoids on a boy 5 years of age, the tonsils being removed with the cold wire snare, after the operation he spoke in a high unnatural voice, which lasted for about six days, when he gradually regained his proper tone. It could not be ascribed to other than irritation of peripheral nerves.

In reference to the case involving the middle turbinated body, I would ascribe the loss of memory to the use of cocain. I have seen some curious temporary mental effects produced by it. In regard to the middle turbinated body, I would say that while I have advised operations upon it under certain conditions, I think we should be cautious. From the intimate association of the vessels of the middle turbinated body with the cerebral meninges, it is perhaps surprising that serious results should not be more frequently encountered. Operations upon this body should be restricted to those cases in which there is a very clear and decided indication therefore.

DR. CLINE—In Dr. Thorner's case in reference to the aphonia I am inclined to think that it was the result of the cocain. I recall three similar cases which I think were due to it. One, a man of very nervous temperament whose sphincter muscles were paralyzed for several hours. He also seemed to be unable to speak, which I attributed to the cocain. I am not in favor of the free use of cocain unless I know my patient.

DR. THORNER—The discussion has been partly diverted to cocain poisoning which I did not consider. The operation which caused the temporary loss of memory was done on the soft parts of the middle turbinated and not on the bone itself. Operations on the middle turbinated are much more dangerous than on the other parts. If you will examine the connections closely you will readily see that it is a dangerous place to operate and the wonder is that we do not have accidents more frequently. As to the operation for the removal, I always prefer the cold snare. This simply cuts away the bone as clean as can be done. The old way of tearing out is certainly dangerous. The galvano-cautery is also very dangerous here. I have heard of a number of deaths that were the result of cauterization. And how many are not reported? There are others who favor the removal with the cutting forceps, which if properly done is also well adapted for operations of this kind.

The principal danger of operations in this vicinity lies in the anatomic relations. We have the immediate region of the orbit separated from the ethmoid cells by the lamina papyracea. We have also the nerves and blood vessels passing through the foramen opticum, through the fissura sphenoidalis, etc. The roof of the nasal cavity is thin and separates it from the brain. And yet there are and will be cases which must be operated upon.

DR. JOHN O. ROE, Rochester, N. Y.—In regard to the case in which the effect of the cocain seemed to be quite unusual, I am also of the opinion that all the manifestations were the result of cocain. Some patients are so extremely susceptible to its influence that all sorts of neurotic manifestations are caused by it. Notwithstanding this fact I daily use cocain in my work freely and indiscriminately without the slightest bad results. With patients who are so extremely susceptible to cocain we must use it with great care. In the case of a patient under my care not long ago, one single drop of a 4 per cent. solution put into her nose would cause agitation of the heart, and a few drops would cause extreme dyspnea, so much so that suffocation would seem imminent. I was obliged to resort to general anesthesia in order to perform the necessary operation in her nose. I find that by giving these patients quite a large dose of tincture digitalis a short time before employing the cocain and giving whisky in sufficient doses to very nearly intoxicate, this susceptibility to cocain is overcome, so that all these unpleasant symptoms and cocain complications are entirely obviated. In the case of the patient just referred to, I have had occasion recently to do a slight operation on her nose, and by the use of digitalis and whisky I was enabled to use all the cocain necessary to complete the operation without pain. In regard to the cerebral complications resulting from operations in the nose, I have observed in the cases reported, that these complications more frequently result from operations upon the middle or superior turbinated bone than in any other portion of the nose. These bodies are a portion of the ethmoid bone, which is closely connected with the cranial cavity, and it is for this reason that under certain conditions disturbances in these parts may be transmitted to the meninges.

DR. ROBERT C. MYLES, New York, N. Y.—As for the fainting from the use of cocain I think it is very common. I have adopted the plan of preventing the solution from extending over a larger area than that on which I intend to operate, and I believe a strong solution is better than a weak one. I also employ the reclining position as a remedy. I have noticed in a number of cases that were in the incipient stage of fainting, when they were placed in the horizontal position they recov-

ered at once. Sometimes a hot room will cause fainting. A peculiarity is that there is very little absorption about the tongue and throat, but in the nose it is very rapid. In regard to operating on the middle turbinated I think that the old way of tearing the body away with forceps is unsurgical and unsafe. The membrane continues through the cribriform plate into the cranium, and it is remarkable that serious consequences are not reported more frequently. The turbinated body can be removed neatly and effectively with the ethmoid clippers or scissors and a cold wire snare.

A CLINICAL STUDY OF TWENTY-ONE THOUSAND CASES OF DISEASES OF THE EAR, NOSE AND THROAT.

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CHICAGO.

The following statistic table of 15,300 cases, combined with a table of 5,700 cases already published, represent the records of 21,000 treated during the past seventen years at the Illinois Charitable Eye and Ear Infirmary in Chicago. The following table was compiled for me by my assistant, Dr. Charles L. Enslee.

My first classification was instituted for the purpose of establishing a basis of calculation of the influence, if any, exerted by occupation, age or sex in the causation of diseases of the ear, nose and throat.

The condition of each patient at the time he first presented himself at the clinic is presented to determine the relative frequency of the different diseases.

As is common in charity hospitals, a considerable number of those who applied for treatment belonged to that class of laboring people who have no definite trade or fixed occupation. In order to facilitate investigation and simplify the tables as far as possible, all those occupations that were closely related to each other in nature and effects were grouped under one heading. For example, under the classification of clerks were embraced salesmen, bookkeepers, office employes, etc.; with teamsters were grouped car drivers, peddlers, etc.; cooks and bakers were classified together; brass molders, iron molders, etc., were classified with iron workers; plumbers, gas and steam fitters appear together; such closely allied occupations as stone cutters, stone masons, bricklayers and plasterers in which the influences and exposures are very similar, are grouped together under the head of day laborers, a term borrowed from the laborers themselves.

The combined tables show that of the 21,000 cases, there are 11,119 patients with occupations, classified under twenty-eight headings. Of this number, 3,813 had out-door work and 7,306 in-door. About 34 per cent. are out-door occupations and 66 in-door; or about twice as many in-door occupations as out-door.

The largest number of any one class were in-door workers, 3,045 domestic servants. Next in order were about half that number of the out-door class, or 1,508 day laborers. Then follow groups of the next highest numbers; 858 clerks, 460 iron workers, 452 carpenters, 400 sewing women, 378 factory workers of all kinds, all in-door occupations before we reach the out-door class again in going down the scale.

While the great stores and factories furnish a large number of patients, the homes contribute 5,615 females, including the servants, seamstresses and women without occupation, or more than one-fourth the whole number of the combined tables. These facts are significant when we take into account the slight difference between the number of males and females affected under the age of 15 years. Out of 6,162 children under 15 years of age there were 1,484 boys and 1,590 girls between the ages of 6 and 15 years; and 1,641 boys and 1,447 girls under 6 years.

[1] Occupation.	W. No.	Ext.	F. B.	In. C.	Fur.	Ac. R.	Ac. L.	Ac. 2.	Ac. S. R.	Ac. S. L.	Ac. S. 2.	Ac. S. & N.	C. N. R.	C. N. L.	C. N. 2.	C. S. R.	C. S. L.	C. S. 2.	Au. P.	M. D	Int.	D. M.	N. Ph.	Ad.	Hy. T.
Bakers	58			12	2	2	4	2	2	2		8	4	4	12		4	2					6		
Blacksmiths	148	2		40		2	2		12	6		16	8		30		4						84		
Butchers	62	2		8		1	2		2	2		3	2	4	12		2						8		
Carpenters	452	6	4	54		4	6	3	2	6		24	6	22	194	6	10	9		2	1		74		4
Cigar Makers	58	2		4								6	2		18		2	2					8		6
Clerks	858			110		3	10	1	22	14	2	44	2	68	258	36	40	28					186		4
Coopers	28			6								6			12								2		
Day Laborers	1499	18	8	208	15	12	10	13	44	55	21	82	70	80	359	96	62	46	12	12	4	2	294		4
Domestics	3045	163	14	245			5		14		2	193	130	125	1135	75	75	153	16	18	25	5	492		28
Engineers	104	14		14								6			30	2	2	6			2		22		
Factory Workers	308	8	2	50		14	8		14	8		14	16	14	124	22	16	10	4	2	8	1	90		6
Farmers	272	4	2	19			4	2	4	4		12	16	11	93	15	6	11	1	7	4		59		4
Iron Workers	460	8	3	24	2	5	4	2	5	2		19	4	10	140	10	12	2	4	1	1		81	2	28
Janitors	198			2		2						6		4	68	2	8						6		
Miners	27			3								3			12								11		
Musicians	82	2		2		1						2			12								8		
Painters	115	1		20	2							14	6	2	35	2	2						14		
Plumbers	47			10								6			42	1	1						4		
Printers	115			28	1	8					1	6	2	1	31		1	1					26		
Professions	453	2		11	2	2		3	2	1	2	10	7	4	133	13	9	4	2	1	2		21		4
R. R. Laborers	174	2		21			2					2		21	33	2	4	17	2	3	2		12		
Sailors	77			17	2	4		2				10	22		246	18	13	2		1	1		65		7
Sewing Women	400	1	2	94								3			155	5	2	10	2	1	2		26		
Shoemakers	102			17								38			42	2	9	2					21		
Tailors	122			18											31		4	1					11		
Teachers	73	2		5	5	3	6	3	4	1	2	6	4	4	133	3	2	3	5	1	1		25	2	
Teamsters	453	9		51		4	4	2	15	9	1	6	8	43	33	13	8	14	5	7	5		109		4
Tinners	118			12		2	2		7	3		2	2	2	246	23	7	10	2	1	2		39		1
No occupation, males	694	26	4	125	5	4	4	3	1	1		10	4	2	150	32	18	49	6	2	2		80		3
" " females	508	28	5	28		4	2		1			4	2	6	190	50	31	50	6	3	2		180		8
Boys 6 to 15 yrs.	927	34	14	128	12	2	4	4	8	9	1	26	8	4	409	41	9	112	10	4	4		148		46
Girls " "	1028	14	14	68		1			2	2		8	4	4	435	90	2	10	2	2	2		147		57
Boys under 6 yrs.	1398	72	20	48				2				25	27	16	222	217	13	84	12	15	10		120		36
Girls " "	1171	64	14	67								24	4	25	222	217	13	84	12	15	9		120		38
Total	15300	468	101	1690	45	73	69	45	207	300	113	908	516	552	4772	707	645	818	92	123	107	65	2476	75	248

[1] From the writer's forthcoming book on Diseases of the Ear, Nose and Throat (in press).

THE ABBREVIATIONS EMPLOYED ARE:

W. No.—whole number.
Ext.—diseases of the external ear.

F. B.—foreign body.
In. C.—inspissated cerumen.
Fur.—furuncle.
Ac. R.—acute inflammation of the right middle ear.
Ac. L.—acute inflammation of the left middle ear.
Ac. 2.—acute inflammation of both middle ears.
Ac. S. R.—acute suppurative inflammation of the right middle ear.
Ac. S. L.—acute suppurative inflammation of the left middle ear.
Ac. S. 2.—acute suppurative inflammation of both middle ears.
A. S. & N.—an acute suppurative inflammation of one middle ear, with a chronic non-suppurative inflammation of the other.
C. N. R.—chronic non-suppurative inflammation of the right middle ear.
C. N. L.—chronic non-suppurative inflammation of the left middle ear.
C. N. 2.—chronic non-suppurative inflammation of both middle ears.
C. S. R.—chronic suppurative inflammation of the right middle ear.
C. S. L.—chronic suppurative inflammation of the left middle ear.
C. S. 2.—chronic suppurative inflammation of both middle ears.
Au. P.—aural polypus.
M. D.—mastoid disease.
Int.—diseases of the internal ear.
D. M.—deaf mutes.
N. Ph.—naso-pharyngeal catarrh.
Ad.—adenoid growths in the vault of the pharynx.
Hy. T.—hypertrophied tonsils.

Of all these children 3,037 were girls and 3,125 boys, leaving a difference of only 88 more males than females under 15 years. Between the ages of 6 and 15 years there were 106 more girls than boys. Under 6 years there were 194 more males than females.

Sex seems to have no influence in the production or prevention of diseases of the nose, throat and ear. It appears that up to the age of 15 years both sexes suffer nearly equally. Possibly a reason for this may be found in the similarity of the lives and habits of the sexes during this early period. But the classes of society that afford clinical material at the medical charity institutions are such that necessity requires them to abandon the pursuit of an education at about the fifteenth year, and to enter upon bread-earning vocations. Thenceforth the divergence in habits and environment increases. The males are either out of doors more than before, or confined chiefly to mercantile houses and factories. The females become domestics, clerks, shopgirls and seamstresses.

An interesting question pertains to the relative frequency of diseases of the right and of the left ear, and of diseases of one ear as compared with diseases existing coincidently in both ears. The above table shows that in acute inflammation of the middle ear there is but a very slight difference in the frequency of involvement between the two ears, and both ears were affected in 24 per cent. of all the cases. In acute suppuration of the middle ear again there is too little difference between the two ears to take into account. In 15 per cent. of all these cases both ears were involved.

In the 5,849 cases of chronic non-suppurative inflammation of the middle ear the two sides were about equally affected, but a great contrast is now offered in the relative frequency with which both ears are involved in the various middle ear diseases, for in this instance nearly 82 per cent. of all the cases presented bilateral aural affection. Sufficient importance must be attached to these undeniable figures in formulating our prognosis when only one ear is already diseased, for it follows, almost as the night the day, that if one ear has become seriously affected, especially with the sclerotic form of dry catarrh, the other becomes subject to the same destructive process.

In chronic suppurative otitis media the two ears suffer nearly equally, and it appears that both ears are simultaneously affected in a little more than 60 per cent. of the cases. In 3,149 instances of unilateral diseases of the ear, there was an excess of only 37 cases of the right over the left. This fact is mentioned particularly because the opinion has often been expressed that one ear was much oftener affected than the other, some specialists believing that the right was affected, by far, more frequently than the left ear.

The tables show that about 13 per cent. were afflicted with nasopharyngeal diseases, but the actual number would be much in excess of this figure. The Infirmary being an eye and ear hospital strictly, not as great prominence has been given to the nose and throat affections as would be desirable, this part of the diagnosis sometimes being entered on the patient's cards instead of upon the record books.

About 0.8 per cent. had diseases of the mastoid process, which was nearly twice as prevalent in males as in females.

Deaf mutes formed about 0.5 per cent. of the 21,000 cases. There were three times as many males as females.

The largest number of any one class of diseases were 8,858 with chronic non-suppurative inflammatory processes of the middle ear, or 42 per cent. of the whole number. Next in numerical order come 3,664 cases of chronic suppurative inflammation, or 17 per cent.; and the next highest number, 1,010 cases of acute suppuration, or 5 per cent.

Children under 15 years of age constitute about 29 per cent., or more than one-fourth of the whole number of cases. Very many of them dated back to attacks of scarlet fever, measles and the earaches, and "running ears" of infancy, so that a much larger percentage than appears should probably be credited to the period of childhood. Only a small proportion of the children were brought for treatment during the acute stage of inflammation. Only about 10 per cent. were acute cases, leaving 90 per cent., or nine times as many who had not applied for treatment until the inflammation had reached a chronic stage. Indeed, only 13 per cent. of the adults were seen in the acute stage of their troubles.

Columbus Memorial Building.

ELECTROLYSIS IN THE TREATMENT OF DETACHED RETINA.

Read in the Section on Ophthalmology, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

BY W. T. MONTGOMERY, M.D.
CHICAGO, ILL.

Within the past few years various remedial agents have been advocated with more or less enthusiasm in the treatment of detachment of the retina. One of the more recent of these agents, and one which from its action and the nature of the disease seemed to promise as much or more than any other treatment, is electrolysis. One of the most full and encouraging reports on the application of electrolysis in detachment of the retina, is by Dr. Terson, and was published in the last July number of the *Annales d'Oculistique*. Dr. Terson reports twelve cases treated with one recovery which had lasted nine months, and five improvements which had persisted for from two to nine months. Within the last six months four cases of detachment of the retina have been treated in the Illinois Charitable Eye and Ear Infirmary, two by myself and two by Dr. B. Bettman. In the treatment of these cases we, in the main, followed the recommendations of Dr. Terson. Positive electrolysis was used; the eye was punctured by the strong platiniridium needle at some point of the sclerotic corresponding to the detach-

ment and a current of five milliampères applied for a period of one minute. The eye was thoroughly cocainized so that the puncture was made without pain, but when the current was turned on the patients complained of severe pain. In Case 2 the pain was so severe as to prostrate the patient and he absolutely refused to submit to it again. In Case 1 the pain was severe enough to bring out beads of perspiration. The after-treatment consisted of the instillation of a 1 per cent. solution of atropin sulphate, the compress bandage and rest in bed for one week. No noticeable reaction followed treatment in either case.

Case 1.—Andrew J. F., age 29, mechanic, Norwegian, July 30, 1895, was admitted into Ill. Charitable Eye and Ear Infirmary. Patient states that the sight of his right eye has always been poor, V — bright light = amblyopia. Eight days ago was struck on the left eye with a piece of wood, and this eye has been almost blind since. On examination, external appearance of eye normal. The ophthalmoscope shows large blood clot in vitreous. Vision—fingers at six feet. Pressure bandage applied, and small doses of hydrargyrum bichlorid and potassium iodid was ordered, and the patient kept quiet. August 30, patient was discharged with V = 20-30, some small floating opacities of vitreous remaining. September 30, patient was readmitted with extensive detachment of the retina. V = motions of hand in temporal field. Patient says his sight failed suddenly the day before. Ophthalmoscope shows almost complete detachment, only a small area of nasal portion remaining. Treatment: rest in bed, bandage and hypodermic injections of the muriate of pylocarpin, saline cathartics. October 15, no improvement. Electroylsis used. Bandage and quiet. October 25, no change. Needle used again, but owing to breaking of wire in holder battery did not act and operation resulted in simple evacuation of subretinal fluid. December 5, patient thinks he can see better. Field is enlarged but can not distinguish objects. Electrolysis again used. December, 15, field and vision not so good. Is now about as it was before electrolysis was used. Patient was transferred to Dr. W. H. Wilder, who injected sterilized rabbit's vitreous, according to Deutschmann. Violent reaction followed, but this subsided within a week. There was no improvement of vision. Jan. 7, 1896, patient discharged as incurable.

Case 2.—M. C., age 65, laborer, American, was admitted into Infirmary Oct. 23, 1895, with umbrella detachment of retina of right eye. Left eye lost from the result of an injury years ago. Present trouble came on suddenly three months ago. No history of an injury or previous trouble. V = motion of hand. Electrolysis used November 6. No improvement. Electrolytic needle used again, but as in Case 1, the battery did not work, the result being only puncture of sclerotic and escape of subretinal fluid. December 5, patient thinks he sees a little better, but we can not detect any change in the detachment. Patient refused to submit to further operative treatment, and was discharged at his own request. Feb. 14, 1896, patient readmitted with acute glaucoma, which he states came suddenly one week ago. Pupil widely dilated. T + 3. Eye totally blind. Pain excruciating. February 27, pain continues. Eye excised.

Case 3.—P. L., age 40; laborer, Irish, was admitted into Infirmary Dec. 30, 1895. Left eye blind for three years as the result of an injury. Vision of right eye began to fail three months ago. On examination cornea clear, pupil dilated, numerous floating opacities in vitreous. T — 1. No distinct vision and only poor perception of light. Detachment of the retina in upper and temporal portions. Pilocarpin treatment used until Jan. 10, 1896, without any improvement. Electrolysis used. The eye was bandaged and patient kept in bed. January 25, no improvement. Electrolysis again used, making three puncture. March 25, still no improvement. No further treatment.

Case 4.—M. B., age 67; farmer, Irish; admitted Dec. 26, 1895. Right eye normal. First noticed flashes of light in left eye three weeks ago. Eight days ago he suddenly noticed cloud before eye, as he expressed it. On examination, cornea clear, pupil dilated. T—? Detachment of retina above, hangs down and nearly covers optic disc. No distinct vision. The pilocarpin treatment was used without benefit. Jan. 20, 1896, electrolysis, single puncture. February 15, no improvement. Electrolysis repeated, the sclerotic being punctured three times at this sitting. March 22, no improvement. Patient discharged by request.

The cases we have reported were all of extensive detachment. Only one, Case 1, can be claimed as presenting conditions fairly favorable for successful treatment. This patient was young, his general condition was good and the detachment recent when the electrolysis was first used. Of the other cases, their ages were 65, 40 and 67 years and the detachment had existed from one to four months. If we are warranted in drawing any conclusions from such a meager report they would be: 1, that the treatment is exceedingly painful, but is not immediately followed by severe reaction; 2, that it is valueless as a curative agent in detachment; 3, it may be a factor in exciting inflammatory glaucoma, as occurred in Case 2.

THE ABUSE OF WATER IN SURGERY.

BY EDWIN WALKER, M.D., PH.D.

EVANSVILLE, IND.

The art of antiseptic and aseptic surgery has advanced with the science of bacteriology. Surgical technique has changed as our knowledge of germ life has advanced. While some observers before Lister seemed to have had a vague idea of the relation between wound infection and microörganisms, to him belongs the credit of putting first the knowledge, scanty as it was, into a distinct shape and to practice antiseptic surgery. He acted on the knowledge at that time and his failures were in a great measure due to the lack of that information we now possess. He supposed the chief source of infection was from the air. Tyndall's observation seemed to prove this, consequently he bent his energies to devise a means of purifying the atmosphere.

Only a few years ago, when operating rooms were small and the air was laden with carbolic spray, the operator and patients were deluged with antiseptic solutions. These stood in puddles on the floor so that one had to wear rubber boots or wooden shoes. I have seen a carbolic spray play directly in an abdominal incision for an hour. Great emphasis at that time was placed on the preparation of the room in which the operation was to take place. The walls were wiped down and the floors scrubbed with antiseptic solutions. Since, however, we have found that infection from the air is very little, and the number of organisms contained in it is so small that the danger is practically *nil* when compared with other modes of access, viz.: hands, instruments, dressings and fluids during the operation. Experiments have shown that even in apartments where decomposing fluids are present, as in water closets, the number of microorganisms in the air is very small. This knowledge has led to the abandonment of cumbersome methods, and little by little we have evolved a simpler and more reliable technique.

Perhaps no greater change has occured than in the use of water and antiseptic fluids. Many accidents were due to the over-use of the latter, and they were responsible more than anything else for the tardy adoption of antiseptic surgery. Many deaths charged to the new method were due to ignorance of principles and excessive use of poisonous agents. This subject has been fully discussed and the danger fully set forth by many observers; still we find surgeons who think it necessary to irrigate a clean wound or wipe it out with sponge or gauze, moistened in some antiseptic solution. The danger of infection from the air is very slight, and if the hands of the surgeon, his instruments and sponges, have been rendered strictly

aseptic, the introduction of antiseptic fluid in the wound is entirely superfluous. It has been proven that blood serum is a reliable antiseptic which is non-irritating and makes the very best covering for a cut surface, and it is fully able to render harmless all the germs that will enter the wound from the atmosphere. An antiseptic solution, or even water, is not only unnecessary but absolutely harmful. Bichlorid solutions produce superficial necrosis and any fluid damages more or less the integrity of the tissues, besides they furnish the very moisture necessary to the development of the bacteria. I do not wish to dwell at any length upon this branch of the subject, for I believe that most surgeons have long since abandoned the use of antiseptics during operations. I have referred to it because recently I have seen surgeons insult clean wounds in this manner. I heard not since, that a surgeon of some prominence in this State filled wounds with protonuclein, thinking thereby to hasten union. It seems almost incredible that anyone would introduce dead elements to replace the living; for even if protonuclein does contain the corpuscular elements, they certainly could not be as reliable as the fresh blood.

It is especially with regard to the use of water that I wish to speak. Most surgeons have within the last few years much curtailed its use. Landerer in 1889 recommended wiping with dry bichlorid gauze and packing the wound carefully to control hemorrhage and remove all surplus blood, so that the wound would be dry when it was time to close it. The dry method has been adopted partially at least, by most surgeons and is considered by all a marked advance. Few, however, fully appreciate the extent it should be applied and many operators still use too much fluid, too much irrigation and too much wet sponging. In most recent articles I find irrigation recommended after many operations, which in my experience have done better without, and we will have much better results when we abandon irrigation except in those cases where mechanically, it is impossible to remove foreign substances or septic material in any other way, and these cases will become gradually less as we apply efficient means of drainage and keep the parts dry afterward.

The first objection against water is that, as ordinarily obtained, it is not sterile. When emergency operations are undertaken, boiled water is rarely at hand, and if it is it has to be cooled with water that has not been boiled. Washing the wound with water that is not sterilized is a hazardous proceeding and is liable to carry more infection than it washes out. The following, taken from Warren's pathology, page 787, fully expresses the idea: "A cubic meter of air may contain from 1,000 to 20,000 germs, but in a drop of putrefying fluid millions of bacteria may exist. Schimmelbusch reckons that the number of germs that settle upon a space a decimeter square amounts to about sixty or seventy during one-half hour's time in V. Bergmann's operating theater. In a cubic centimeter of water of the river Spree, which flows past the clinic, it is estimated there exists about 27,000 germs. Assuming, now, that a boatman should injure his hand and should wait one-half hour in the clinic before it is dressed, he would receive upon the surface of the wound, covered probably with a blood clot, between sixty and seventy bacteria. If, however, he attempted to 'cleanse' the wound in the Spree water and bind it with a dirty handkerchief, the number of organisms that would come in contact with the wound would amount to probably between thirty and forty millions."

I know it will be argued that water is easily sterilized by boiling, but unfortunately we usually have to delegate that part of the work to some one who is uneducated in aseptic methods. Who of us has not in our haste, after carefully boiling the water, found it too hot for use, cooled it with plain water, and then to ease one's conscience a few bichlorid tablets were dropped into it; or having directed some one to get the water ready, have seen the temperature tested with a dirty hand or it is brought in a vessel which has been in service in every branch of household life. It is practically impossible, even with trained help, under the most favorable circumstances, to attain absolute asepsis, and when that part of the work devolves on those who are not especially trained it is sure to fail.

To test this subject I had three trained nurses prepare three pitchers of water, telling them that it was to be used for an operation. They each washed out a pitcher with sapolio and scalded it with boiling water, then after boiling the water thoroughly for one-half hour poured it into the pitcher, and covered it carefully with a clean towel. The result of a bacteriologic examination by Dr. Kerth, showed germs in two of them while one was sterile.

If we have prepared our hands and instruments and the skin of the patient properly, in any clean operation, dry wiping with sterilized gauze will remove all blood and render the wound dry and clean. Blood clots and the tissue which may be cut away, can be removed without one drop of moisture, and these wounds will heal more kindly and are less frequently infected than where water is used.

Thus far I have only spoken of clean wounds, but I believe the same is true of infected wounds and in cavities, mucous and serous, where infection exists prior to the operation. I do not speak dogmatically because sufficient experience has not been collected to fully establish the fact, but from my observation dry sponging has been more efficient than irrigation. I do not include in this assertion, cavities, sinuses, etc., which mechanically are almost impossible to clean without water. When this is the case, after thorough washing, the parts should be dried and efficient drainage established and dry methods employed afterward.

In operations in the uterine cavity the same general rules should be followed. After curetting for endometritis or removal of the products of conception before the third month when not infected, I never irrigate. Since abandoning washing out with antiseptic fluids, my cases have done much better. The packing remains sweeter and the discharge following is less. Twice in the past year I have been compelled to empty the uterus at the second month for vomiting. (I may add by way of parenthesis, that they were the only two cases in which I have had to resort to this measure.) In both, the os was dilated by steel instruments, and with the curette and Martin's forceps the fetus and membranes were removed, the cavity wiped out with sterilized gauze and packed with iodoform gauze. This was done under strict aseptic precautions. In neither case did the temperature rise to 100, or was the pulse at any time above normal. After the third month and where infection has occurred, it may be better to irrigate in some cases,

on account of the difficulty of removing all foreign matter without it. I have, however, treated a large number of this class entirely by the dry method with most satisfactory results.

It is possible, rapidly and thoroughly, to remove all debris even in quite a large uterus with the finger, a dull curette and curetting forceps. I have not had the accidents so often spoken of in this connection, due to instrumental interference. The unfavorable sequence (pelvic inflammations, etc,) are often due, to the forcing of pus through the tubes by the irrigation. I have known peritonitis to follow irrigation of the uterus several times. I am very partial to the use of Martin's heavy forceps in these cases. With them the uterus can be more rapidly emptied than by the curette alone, and in many cases they are more efficient than the curette or fingers. I have never had any unfavorable results from them. So far, I have not treated the infected puerperal uterus by the dry method, nor has it to my knowledge been employed by any one, but it has been so successful in my hands in smaller infected uteri, that I shall try it the next case I have to treat.

Formerly I performed operations on the cervix, vagina and external genitals under constant irrigation with antiseptic solutions, and later with sterilized water, as was the general custom. The later works on gynecology (Keating and Coe) recommend it. Since adopting the dry methods my results have been much more satisfactory. So much so that I have entirely abandoned irrigation in all operations on the genital tract. No water, not even a wet sponge is used. I use irrigation to cleanse the parts before the operation, but after the first cut, not a drop of water is used.

Irrigation in the abdominal cavity, while still employed by many operators, has been entirely abandoned by a large number. It seems impossible to wash out with any degree of thoroughness the abdominal cavity. In aseptic cases it is certainly superfluous, and in pus cases the careful protection of the cavity by gauze, and wiping out with the same material, has been more satisfactory in the hands of many. Careful, thorough work renders irrigation superfluous except in rare instances. The dry method seems to me more rational, and in my experience has been attended with better results. This method possesses great advantages to the surgeon who does much of his work in their patients' homes. He can pack his bag with everything he needs thoroughly sterilized, and after he has disinfected his hands, use absolutely nothing on the premises. When I go from home to perform surgical operations, I take everything I need except the water to wash my hands, and I think by this method I exclude many avenues of infection. If antiseptics or water are used, it adds that many more chances of trouble. The instruments should not be immersed in any fluid for the same reason. Simplicity all along the line is the watchword, and every additional detail may furnish a loophole for the entrance of the enemy. A fair trial will convince any surgeon of the superiority of the dry method.

Magnan's Sign in Chronic Cocainism.—Ribakoff has had occasion to observe a couple of cases of severe chronic cocainism in which Magnan's sign was the predominant symptom. This is a hallucination of the cutaneous sensibility, characterized by the sensation of a spheric foreign body under the skin, varying in size from a grain to a nut. This sensation is peculiar to this intoxication and its differential value should be more generally recognized.—*Gaz. d. Osp. e d. Clin.*, August 4.

EXPERIENCE OF AN AMERICAN PHYSICIAN IN MEXICO.

A CASE OF MALIGNANT EDEMA—A MEXICAN FUNERAL.

D. H. GALLOWAY, PH.G., M.D.
CHICAGO, ILL.

The patient was a laborer, 38 years old, who had received a crushing injury to the foot from a car wheel, which passed over it high up on the instep. The accident happened on Sunday and he arrived at the hospital Tuesday afternoon, sixty hours later, after a journey of 200 miles.

The injured foot had been wrapped in cotton waste, such as is used about the engines for cleaning purposes. I sent for a Mexican physician and then prepared to operate, with the assistance of a couple of servants. I put the patient to sleep with chloroform, changed to ether and then gave the cone to one of the servants. The leg was prepared for amputation just above the ankle, the operating table being outside the house in the sbade of the building. As I began to operate the Mexican doctor arrived and greatly to my relief took charge of the anesthetic. I placed the instruments in two basins on two chairs so that I could reach them without much difficulty, as I had to procure my instruments as well as do my own sponging. In one pan I had a knife, a saw, a pair of artery forceps and a needle threaded with silk. The other pan contained a few other instruments which I thought might be needed. As the bone was sawed through the doctor took it in his hands to lay it down thus getting them covered with blood and pus. I picked up an artery and put on a ligature and then looked for more but could not find any. The doctor noticing my difficulty, wiped his hands on the patient's clothing and swept his fingers over the stump in search of other vessels which might need tying. As he also was unsuccessful, I motioned (we could only communicate by signs, as I could not speak Spanish and he could not speak English and we had no interpreter) to him to loosen the Esmarch bandage so that we might find the other arteries by the bleeding. He did so but no blood appeared, even downward stroking of the leg failed to reveal any spots bleeding sufficiently to require tying. The wound was then closed in the usual way with silk sutures, a drainage tube put in and a dressing put on. Before closing it however, I irrigated very carefully with a solution of bichlorid of mercury. in the hope that I might remove the infection implanted by the doctor's hands and with the expectation that I would discover, at least, a second artery that would need a ligature. We now turned our attention to a rather insignificant injury in the other leg, a triangular wound of the skin over the thickest part of the calf, exposing the muscles which appeared to be uninjured. This was carefully washed out with a bichlorid solution and an iodoform dressing put on. On Wednesday I repeated the irrigation of this wound, which seemed to be in good condition. On Thursday the dressing was saturated with a bloody fluid and I irrigated it several times with hot bichlorid solution. Friday the discharge was more copious and the leg slightly swollen. In washing it, I separated the muscles with my fingers and irrigated very thoroughly between them. All day the swelling increased so that at 4 o'clock the leg seemed ready to burst with the tension and it was almost black. Bloody fluid ran in a stream through the mattress to the floor. Several incisions were made from the knee to the ankle, the

first one was three-quarters of an inch deep and gaped nearly two inches.

My Mexican friend predicted that the patient would die before morning but suggested that he have some medicine. At my request he wrote a prescription which I took to the drug store. The druggist gave me two bottles full (one was not large enough); one held about twenty-four ounces and the other sixteen ounces. Directions: half a teacupful every three hours.

Amputation was out of the question, and the patient died the next morning, five and a half days after the injury. The stump of the amputated leg was healing well with very little suppuration.

Never having seen a Mexican funeral, I thought this a good opportunity to do so. The patient died at 4:30 A.M., and at 7:30 the Mexican physician wrote out an application for a burial permit. This I took to the "civil judge," who copied the document entire into a large book. He then asked my name, age, birthplace, whether married or single and the number of children I had. The last question followed the previous one, though I had just said that I was unmarried. I signed my name to what he had written in the book, paid $1.25 and was given the permit. This was taken to the custom house, endorsed by an official there and we were free to proceed with the funeral. A coffin was obtained for $2.50. It was made of light wood, painted black and trimmed with white stripes. A cross was painted on top and "1893" on the head end.

The body was wrapped up in the sheet on which it lay and put into the coffin. Four cargadores, hired for the purpose (at 50 cents each), put it upon their shoulders and took it to the graveyard. In twenty minutes we arrived at the "Cemetery of the Angels." This is surrounded by a high stone wall through which we enter by an iron gate under an imposing stone archway. On passing this gate we came into an enclosure of, perhaps, five acres, containing quite a number of monuments. This was the "yard of the first class." Walking through this we passed by another gate into a second enclosure of about the same size constituting the "yard of the second class." The entire surface of the ground here was level except for irregular piles of earth here and there, and bare except for seven or eight small mesquite trees. Not a spear of grass! Not a flower! Near the middle there was a row of ten open graves, about five feet deep and separated from each other by about a foot of earth. The loose earth was piled up in a windrow at either end of the row of graves. Here the bearers set down their burden. An attendant, who had followed from the entrance with two short ropes and five shovels, took the permit, the coffin was opened for his inspection but he disdained to look. The lid was put on again and fastened with two or three small nails driven in with a small stone picked up near by. The coffin was then lowered into the grave nearest the path and the five men began shoveling in the dry earth, talking and laughing, meanwhile; but about what, I did not know.

While they were thus engaged I employed myself examining the mound of earth under my feet. I was standing on a human femur. On looking more carefully I found that the earth was covered and filled with human bones! A tibia, a scapula, a radius, half a dozen ribs in a pile, part of a pelvis, bones of hands and feet without number! Easily fifty bones in sight without disturbing the earth a particle! Meantime the grave was full, no mound being made, one of the cargadores said "lista" (ready or done), and we turned away. The burial over, the funeral services ended! Antonio Hernandez under the sod! No, under the sand, gravel and the bones of his predecessors in this particular spot. Four hours before, he began his last long sleep, now begins his last long rest (?) No, five years hence his bones will be notified that their lease is up and they must move. The landlord wants the ground for another tenant. Then his skull, perchance, may sit on a pile of earth, as two skulls sat to-day, and watch his successor take his place. The bones of his hands and feet will be a part of the earth which fills the grave over the newcomer.

I made inquiries and found that this cemetery was eighteen years old and that every five years the ground is reopened for new burials. The bones are supposed to be gathered up and deposited in a trench dug for that purpose, but that many of them are returned to help fill up the newly opened grave, I, myself, witnessed. The rich buy lots and dig graves eighteen to twenty-four (!) feet deep, in order that their bones may not be exhumed in the next turning up of the soil.

What an impression is made on one accustomed to the orthodox funeral at home! The darkened room or church, the expensive felt-covered silver-trimmed coffin, the crape, the flowers, the people with their sympathy and tears. The pall-bearers, dressed in black, with white gloves and bared heads. The hearse with its somber plumes and black horses, the long procession of carriages; the cemetery, with its trees and grass, flowers and monuments; the throng of people about the open grave, the measured tones of the minister repeating the solemn burial service, all culminating in the "ashes to ashes, dust to dust," as the clods roll in upon the coffin.

To one who carried such an impression of what a funeral ought to be, the Mexican way seemed forbidding enough.

But is not that, in some respects, a better custom than ours? The object in putting a body into the ground is, or ought to be, to resolve it into its elements. There it is put in as light a coffin as possible and buried in dry soil where disintegration will rapidly take place. Here we put it in a strong, sometimes a metallic, coffin and inclose this in an outer box; thus retarding decomposition as much as possible. There a funeral costs $6 or $7, here even the poor will spend $100 or $200 on a funeral, for coffin, carriage, flowers, etc., even when they are too poor to pay the doctor or even buy the decent necessities of life. If prejudice is so great that cremation can not soon be made general, people might, as a step in the right direction, be compelled to use coffins of wickerwork or very light wood so that nature's work of purification might be facilitated, and not retarded.

In five years, buried in Mexican soil, the body disappears, except the bones. Investigations in our cemeteries would reveal a very different condition. We should not regard with such horror the customs of other people without considering the end sought. The feeling of abhorrence we have for new or strange customs is only relative and disappears when we become accustomed to them, particularly if any good end is attained thereby.

As I left the cemetery I was approached by the attendant with a request for money to buy pulque for himself and the cargadores. Returning to the

hospital, I took the mattress, bedding, dressings and indeed everything combustible which had been about the patient, into the back yard, saturated it with kerosene and burned it. The room was scrubbed, then washed with a solution of carbolic acid and left open and unoccupied for some time. There were other patients in the hospital who had wounds, but none of them became infected.

200 Oakwood Boulevard.

A NEW FIGURE-OF-8 PEDICLE LIGATURE.

BY F. SHIMONEK, M.D.
MILWAUKEE, WIS.

The following pedicle ligature is, so far as I know, original:

I have used it with much satisfaction for the last nine months. It is an improvement upon the old

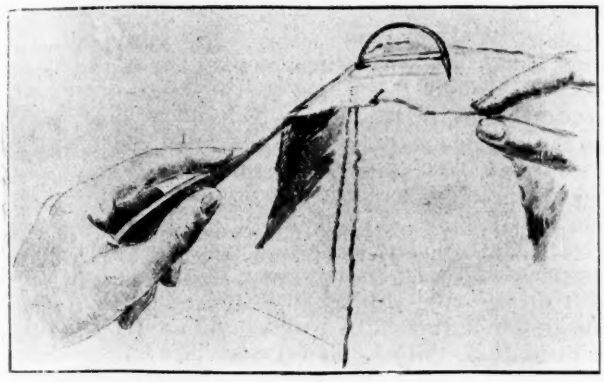


FIGURE 1.

Worllich ligature, because it can be quickly tied, whether it be used singly or as a continuous ligature; for very broad pedicles only one knot is required; the

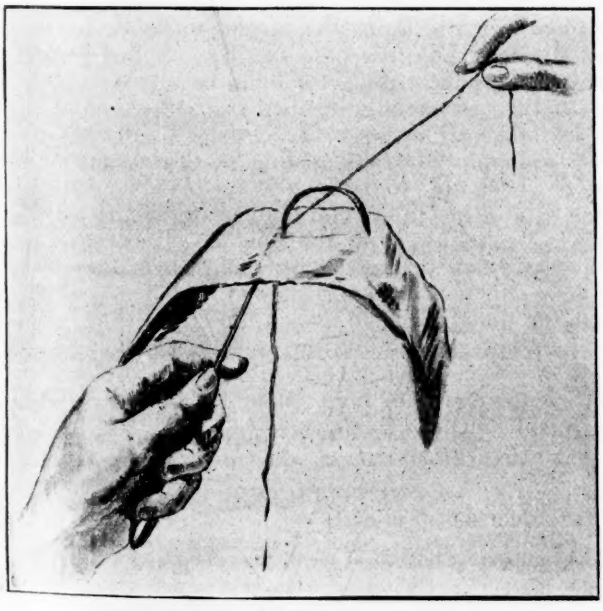


FIGURE 2.

threads cross naturally when passing through the pedicle. It is better than the Tait ligature because of its applicability to any breadth pedicle and can be safely tied, and without any trouble whatever.

An armed needle is passed through the pedicle, as shown in Fig. 1. That part of the ligature passing through the eye of the needle is withdrawn from it, as shown in Fig. 2. We now have the needle and ligature passing through the same opening in the pedicle, and yet are independent of each other. Take that part of the ligature corresponding with the handle of the needle, carry it half way around the pedicle and pass it through the eye of the needle as shown in Fig. 3.

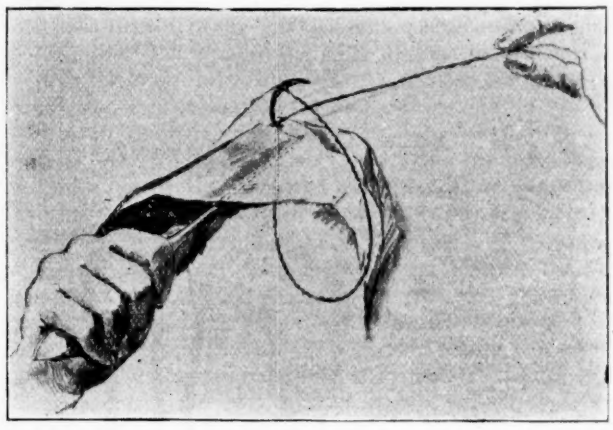


FIGURE 3.

Now withdraw the threaded needle from the pedicle, thereby forming a loop upon one side of the pedicle, the ends passing and crossing through the same opening appear upon the other side and may be tied,

FIGURE 4.

as shown in Fig. 4, or, in a very broad pedicle that can not be securely tied with one figure-of-8, the needle may be passed through the pedicle at a distance of one-half inch or more, threaded with one of the free ends, then unthreaded of that end and again threaded

with the other one, and so on, until the entire pedicle is encompassed and the free ends tied.

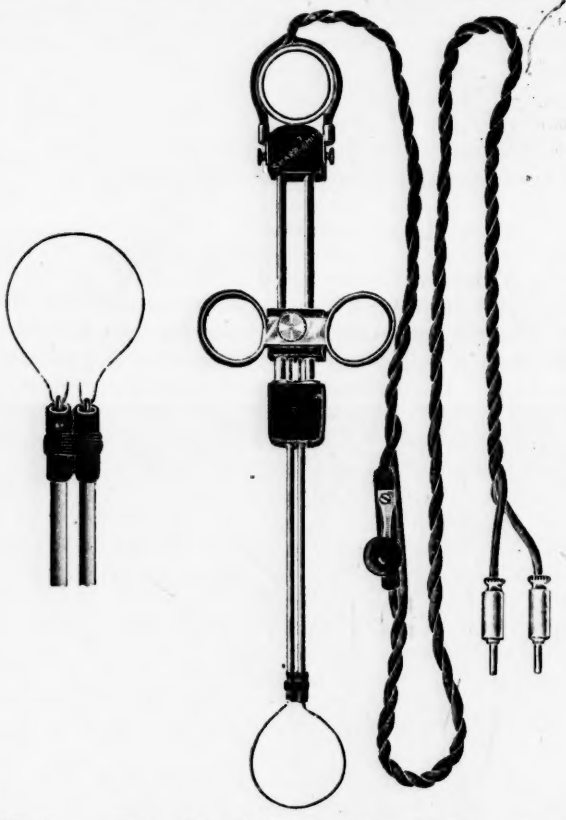
307 Grand Avenue.

A HANDY FORM OF HOT SNARE FOR TONSILLOTOMY.

BY HENRY GRADLE, M.D.

CHICAGO.

It is acknowledged by many throat surgeons that the galvano-cautery snare is the best instrument for the removal of tonsils, because its acts very efficiently and prevents bleeding. Any one who has used either the hot or the cold snare for tonsillotomy has been able to observe that the wire loop slipped over the tonsil, after the latter has been pulled forward with a tenaculum or appropriate forceps, will grasp a larger portion of it than can be sliced off with any form of



guillotine. But with slight experience the snare will be found even more thorough than the use of bistoury or scissors. The cold wire, however, is quite painful and with a Wyeth's snare it may even happen that the wire is pulled out of the stylet instead of cutting completely through the tonsil, if the gland is fibrous in consistency. The hot wire on the other hand cuts its way as easily as a sharp knife, even if only a dull red heat is employed. As this degree of heating is sufficient to stop all bleeding it is unnecessary to bring the wire to more than a dull red glow and indeed we only inflict more pain and produce a slower healing wound by heating the wire beyond this point. Since the current raises the wire progressively to a higher temperature as the loop gets shorter, it is best to press on the key and accordingly close the current in an intermittent fashion. The wound heals a little more slowly than a clean cut with the knife. But if the wire is not unnecessarily hot I find the wound entirely cicatrized in from five to ten days, according to the size, which is perhaps, two days more than for a corresponding tonsil cut with the knife.

The hot snare prevents bleeding entirely. If a few drops of blood appear they are due to unsuccessful grasping with the tenaculum. However trivial the bleeding may be in most tonsillotomies, anyone who has ever worked over one of the "exceptional" cases of tonsillar hemorrhage can appreciate the advantage of a bloodless operation. Even if fatal cases are very rare, annoying bleeding from tonsil cuts is not uncommon, especially in adults.

My reasons for devising a new instrument are the weakness of the ordinary snare canulæ and especially the loss of time incurred in wiring the hot snare as it is found in the market. I have hence designed a snare for tonsillotomy, which, however, can be used for any other purpose where straight and not very thin tubes are applicable. It consists of a handle made of two parallel brass bars, 11 cm. long, mounted in rubber blocks at both ends. A third rubber block slides along the bars when guided by the fingers inserted through the rings on the block, while the thumb rests in the ring at the rear end of the handle. The sliding block holds two insulated steel stylets which when pushed forward, protrude through the two canulæ in front of the handle just far enough to allow a wire to be slipped through the eye in each stylet. The two canulæ, 9 cm. long and 2.5 mm. thick, are insulated by separation along their length and by a soft rubber tube slipped over the end, while their ends are strengthened by wire wound around the rubber insulation. Steel (piano) wire is a better material for the loop than platinum on account of its stiffness. The instrument can be used with a loop nearly 11 cm. in circumference, but this size is rarely required. If a few suitable lengths of wire are prepared with their ends bent sharply, as shown in the accompanying cut, the burnt or softened wire can be replaced in a few seconds.

As shown in the figure the current enters the instrument through the cords permanently attached beside the rear ring, passes along the brass bars to the stylets directly through metallic contact in the front block as well as indirectly through the canulæ to the stylets and wire loop. Good connection is thus assured. I have not been able to devise a better place for the key which establishes the circuit than in the length of the cords twelve inches from the handle. Experience in over twenty-five operations has taught me that this arrangement is a practical one. The hand which seizes the tonsil with the tenaculum (put through the wire loop) presses the button as soon as the loop is in place.

The instrument has been made for me by Messrs. Sharp and Smith of this city.

SELECTIONS.

The Less Frequent Hazards of the Bicycle; Defects of the Tandem Wheel.—The editor of the *Boston Medical and Surgical Journal*, July 23, comments upon some of the less common accidents of 'cycling as follows:

"Although the worst casualties usually occur to riders going at high speed, there are certain conditions which render falls even when going at a low rate of speed serious and disfiguring. Of these the principal is that in a large number of cases, particularly those which are due to suddenly running into an obstacle, the weight of the head and body being carried

high, and the legs arrested by the handle bars, the head, and particularly the face, is the first to reach the ground. A man taking a 'header' from a horse starts from such a height that he may turn a complete somersault and land in a sitting posture, but the bicycle is so low that the victim strikes the ground face first, and when he has plowed over a few yards of gravel or pavement, his physiognomy is usually somewhat altered. A particularly dangerous accident is the breaking of the front fork of the wheel. Here the victim never has time to get his hands before his face, and fracture of the nose and jaw with serious laceration of the soft parts almost invariably results. These falls are so quick that before a man has time to let go of the handle-bars his face strikes the ground. In fact in headers from the bicycle generally, there is no time to let go of the handle-bars in order to protect the face. Sprained wrists and broken arms are therefore comparatively rare, while broken noses and serious lacerations of the face, mouth and eyelids are common. Bruises, sprains and abrasions of the shoulders occur if the face escapes. The danger of the breaking of the front fork is especially great in the case of the tandem wheel, where the fork has to bear the weight of two instead of one, and the danger from any flaw in the steel of which it is constructed is consequently greater. The writer has recently seen two young women who were seriously disfigured by falls due to the breaking of the front forks of second-grade tandem bicycles. The moral for young men who wish to give their sweethearts a taste of the joys of riding tandem would seem to to be to buy none but a first-grade wheel and take the front seat yourself. Although accidents to the face, head and shoulders are the more common, fractures of the legs and bruises and sprains of the knee occasionally result from bicycle accidents, and internal injuries are by no means unheard of. A case of rupture of the pancreas due to a blow in the epigastrium by the handle-bar has recently been reported. The bicycle is proving itself so important a means of providing fresh air and healthful exercise to a vast number of people that the good done by it greatly overbalances the harm resulting from occasional accidents, most of which can be avoided by careful riding and by the selection of a well-constructed, standard wheel."

Fifty Cases of Pernicious Anemia.—The London *Lancet*, August 29, refers editorially to the work done in recent years in the elucidation of pernicious anemia, and analyzes the report by Dr. Richard C. Cabot of Boston on fifty carefully studied cases of that affection. The *Lancet* commends Dr. Cabot's work in regard to the corpuscular changes, especially as to coloration and shape. The observer has not found the pallor of the corpuscles equally marked in all cases. Where deformities in shape were present one of the commonest is the absence of any central biconcavity, the corpuscles being swollen up and taking appropriate stains in a smooth, even manner quite different from the normal corpuscle.

"Variations in shape (poikilocytosis) were more apt to be present, if at all, toward the fatal end of the case. Of thirty-six cases in which this point was noticed ten showed little or no variation from the normal shape. The deformities when present usually belonged to one of a few types such as are usually pictured in connection with the disease. The racquet-shaped and sausage-shaped cells were specially common. These variations of shape were not commoner in pernicious anemia than in any severe case of secondary anemia or chlorosis. This opinion coincides with that of other modern observers, although at one time it was held that the condition of poikilocytosis was one peculiarly characteristic of the pernicious form. According to Dr. Cabot's experience, the distorted forms of the red corpuscles were not infrequently absent in pernicious anemia—in more than one-fourth of his series. The variations in size were more constant than deformities. They were present in 90 per cent. of these cases, both microcytes and macrocytes being seen. Here, again, Dr. Cabot corroborates the writings of other authors. Most of the latter, however, lay more stress on the large numbers of microcytes which are usually seen, frequently in groups of twenty or more together, while macrocytes, as a rule, are only present in small numbers. The increase in the average diameter of the corpuscles was present in eighteen of this series, so far as could be judged by measuring a few corpuscles in each case and then endeavoring to apply the standard so obtained to a large number, a method easily adopted in ordinary clinical work. Very frequently the large corpuscles showed the lack of biconcavity mentioned above. The Ehrlich-Biondi method, which was used in all these cases, stains normal red corpuscles straw yellow. In nineteen cases of the series there were present certain red cells which contrasted distinctly in color with the clear yellow of the surrounding corpuscles. The color of these atypically stained cells varied through various shades of brown to purple. This reaction is not so well known as the other properties of abnormal red cells and is worthy of further investigations. In only one of the thirty-five cases examined were nucleated red corpuscles wanting. In the thirty-four others there were seen from 1 to 568 nucleated red cells in the space covered while making a differential numeration of 1,000 white cells. As many as nine different varieties of nucleated red cells were noted in addition to the cells with dividing nuclei (some of them of normal size, some as large as any megalobast) and cells showing karyokinetic figures. In no case was there observed any sudden and marked increase in the number of normoblasts, such as has been mentioned by some writers as a point of favorable import. As a rule, the number of megaloblasts steadily increased as the patient grew worse, while the relative proportion of normoblasts diminished. Cases where the whole number of nucleated corpuscles, or the proportion of megaloblasts, was relatively large seemed to be neither better nor worse off than those where only a few were to be found, but on the whole it is to be concluded that an increase of these cells in the blood of any one case is a bad sign."

Galvano-Cautery in Uterine Surgery.—Dr. Charles Jewett, in the *Brooklyn Medical Journal*, September, offered some remarks on the claims of cautery in the treatment of uterine cancer and of procidentia. These remarks were made in the course of a discussion before the Brooklyn Gynecological Society on true and false methods in this branch of surgery. Dr. Jewett contended that the cautery had not received the attention that it deserves. The first and most obvious advantage is its complete antisepsis, an attribute that can not be marred by the carelessness of either the operator, assistant or nurse. In certain cases, no doubt all the diseased and infected tissue can be removed, and the results reported by Dr. John Byrne and his associates commend the operation as one deserving to stand side by side with hysterectomy until experience has proven that hysterectomy gives better ultimate results than the mere removal of the diseased tissues with the cautery knife." The cautery knife is, too, a very valuable adjunct for at least the first step in vaginal hysterectomy. It frequently makes this part of the operation a bloodless one, and it obviates the necessity of hemostatic sutures in the vaginal wall at the close of the operation. It is one which I have used with satisfaction. Theoretically, total ablation, on the other hand, appeals to the judgment of the surgeon in cancer of the uterus, as it does in cancer of other organs. In carcinoma of the breast the surgeon considers it necessary to remove not only all the diseased tissue, but the entire mammary gland, and with it the pectoral muscles and all of the lymphatic glands that are known to be or that might be involved. A similar rule is enforced in the treatment of cancer generally. If there is any criticism on the Doctor's method it is the uncertainty that the operation reaches all the infected tissues of the uterus. With reference to the theory offered as to the action of the current on the structures left behind, I can not agree with him. The current which runs through the cautery knife passes from one pole of the battery to the loop or knife and back again to the other pole of the battery, none going out into the tissues. I assume that the galvano-cautery does not differ in effect from any other kind of cautery. The action of the instrument must be simply that of a hot knife or iron. The tissues are disinfected, the cancerous elements are destroyed, only so far as the slough goes; at least that is my belief. The use of the cautery in the treatment of procidentia is a method we are familiar with through the teachings of Dr. Byrne. No doubt the results are quite as permanent as in many cases of ventral fixation and of most other operations for the purpose. The effect, I take it, of the knife is to set up an inflammation, with resulting proliferation of tissue, which blocks the pelvis and holds the uterus up. The inflammatory products must be absorbed in time—I am glad to know it is ten years in some cases—but ultimately we must expect the uterus to come down again."

The Medicine of Life Insurance is yet in its Infancy.—The editor of the *Medical Examiner* offers the following thoughts upon the higher plane of insurance:

"Insurance medicine is yet in its early stages. Within the last fifty years it has made great advances. There is no doubt that in the course of time, for that is a great element in the collection of statistics of this character, greater accuracy will be reached in everything relating to the medical phase of life insurance. The best medical men of the profession are needed and sought for to act as examiners—men who are capable of accurate observation and of securing accurate records. While the first is possible, the latter is not always so, as applicants will not state or do not know the facts in all cases. Conclusions drawn from inaccurate data are themselves defective, and allowances in practice must necessarily be made. But no department of an insurance company is beyond the reach of law. If the status of a company as reported to the insurance department of a State, is found to be below the required standard, the causes are immediately sought for and the appropriate remedy is applied. If the medical department in any part of its organization is found to be at fault, then the State will require such changes to be made as will remedy any defect discovered. These defects are so far-reaching and cumulative that they can not be otherwise than disastrous if allowed to exist. The medical department of an insurance company is one of the necessary and important divisions of its organization. Upon its efficiency and integrity depends the very existence of the company."

The Narrowing Field of the General Practitioner.—The following is a portion of an essay by Dr. Onslow Gordon of Brooklyn in *Weir's Index*, inculcating a higher self-confidence and a less constant reliance upon specialists. He holds that specialism is overdone to an extent injurious to general medicine, and a concert of action is needed. He further says:

"Within comparatively few years the field of the general practitioner has been very much narrowed, and present indications point to still greater inroads upon his field of usefulness. Should he be crowded into such narrow quarters that he will be unable to exist, the fault will be largely his own. It requires but a moment's reflection to convince one that the number of good, all-around physicians is rapidly growing smaller and that the tendency is toward specialism. While I have nothing to say against specialism in medicine, and would not wish to go back to the time when there were no specialists, as we owe very much to them, and there are certain lines along which they can do better work than the man who tries to cover the whole field of medicine and surgery, I think that the general practitioner is too dependent upon them at the present time. A very large number of physicians (especially the younger members of the profession) are doing a larger business as distributors of cases than as practitioners of medicine; 'they shake the bush and the specialist gathers the fruit.' There is not a member of this Association that has not repeatedly seen the specialist called upon to open a simple abscess, remove wens, dilate for anal fissure, remove tonsils, ingrowing toe-nail, perform circumcision and do an innumerable number of operations that the family physician should blush to decline. All surgical cases are sent to the surgeon, gynecologic cases to the gynecologist, throat and nose work to the laryngologist, heart and lung affections to the chest specialist, nervous diseases to the neurologist, diseases of the rectum to the rectal specialist, genito-urinary ailments to the gento-urinary surgeon, joint and bone diseases to the orthopedic department, eye and ear troubles (however slight) to the ophthalmologist, and skin diseases to the dermatologist; we can also find specialists who will call us good fellows if we will turn over our stomach, kidney and hernia cases; yet there are very few specialists who will decline to treat a patient, no matter what his ailment may be, if the *money* is in sight. While the people of moderate means still tolerate the family physician as an obstetrician, the more favored in worldly goods are looking for a specialist when an accoucheur is desired. If matters continue on these lines, the specialist, or more properly speaking, the general practitioner, will leave for himself possibly acute coryza and constipation. The tendency to rely on the specialist has grown to such an extent that there are many physicians who will not remove a retained placenta, suture a recently lacerated perineum, however simple, open an abscess or venture a diagnosis in any obscure case. It is the custom of the times that makes them hesitate to rely more on their own judgment and call into action the ability their patients have a right to expect them to have. It has been well said, 'The wise and brave conquer difficulties by daring to attempt them.' Perhaps the time will come when the general practitioner will be consulted only as to the advisability of calling a specialist and whom to call. All this can but tend to belittle the family physician in the eyes of his patients, limit his ability and impair his usefulness, to say nothing of his loss from a financial standpoint. The physician who has no confidence in himself can not expect others to trust him with their lives. I believe there will always be room for the well-equipped general practitioner, unless he persists in turning away all of his most interesting cases. By so doing he will help educate the rising generation to believe that they are to depend on the family physician to treat slight ailments only."

The Lancet on the Health of Chicago.—The London *Lancet* for August 29 has the following interesting annotation about Chicago's health, taking up anew, although in an incidental manner, the thread of certain investigations that were made by that journal in 1893, at the time of the great exposition. The annotation opens by referring to the report, printed in April of that year by a special *Lancet* committee, or "Sanitary Commission," of inquiry concerning the water supply of Chicago, and says:

"When, three years ago, we undertook an investigation into the drainage and water supply systems of the city of Chicago we acted primarily in the interest of our own countrymen who, in the year 1893, were visitors to the great exhibition; but as we then remarked, the matters examined were of even more abiding importance to the residents in Chicago than to her visitors, and it was very gratifying to us to gather from the way in which our action was received by the city authorities that they took the same view. Since that date our own opportunities of collecting information concerning the sanitary history of the city have naturally been occasional only, but we have from time to time heard with a lively interest of the progress of the large engineering works required to secure efficient drainage on the shores of Lake Michigan and the effective use of the boundless supply of excellent water which the lake brings to the city's door. A return from the Bureau of Vital Statistics, for a copy of which we are indebted to the courtesy of the Commissioner of Health, shows that the effect of the water supply upon the health of the city is made the subject of constant and watchful attention and certainly the results of the observations made illustrate in a very striking manner the close—we might even say exact—relation between the two. This is well exhibited by a diagram which accompanies the Commissioner's report for the month of June last in which the mortality rates from intestinal diseases for six months are collected. Upon this diagram one curve shows the varying condition of the water supply, the badness of the water in the sense of pathogenic quality being measured by the height of the curve in successive weeks; a second curve shows in the same way the weekly series of mortality rates due to typhoid fever; and a third a corresponding series of mortality rates due to other acute intestinal diseases, such, apparently as enteritis, gastro-enteritis and diarrhea. Between the water curve and the second mortality curve the correspondence is most striking. The water supply was at its worst in the week ending December 28 last; the mortality from intestinal diseases was greatest in the following week. The water curve shows culminating points in the weeks dated January 25 and February 15, in each case followed by a maximum point in mortality from intestinal diseases a fortnight later. A marked amelioration in both conditions is indicated throughout the month of March, but in April, May and June the water supply became again pathogenic and within a week the mortality curve exhibits a corresponding increase, both curves approximating closely to that reached by them respectively in the month of January. In fact, the dependence of the one upon the other might almost be expressed by a mathematic formula. In the case of typhoid fever the correspondence is not so close and the difference is characteristic. The bad water maximum of December is followed after an interval of five weeks by a typhoid fever maximum in the end of January, and although the typhoid curve does not respond with the same precision as the curve of other intestinal diseases to the water maximum of the following April there is a traceable rise in typhoid fever mortality during June and it is matter of common observation that this disorder is less rife in the spring than in the after part of the year. Altogether the statistics produced from the health department of Chicago are most suggestive, eminently instructive and of much more than simply local significance."

Clinic Teaching in the Modern Hospital.—The *Sanitary Journal* of Glasgow, June, 1896, considers the subject of ampler provision for the use of clinic material at the infectious disease

hospitals, especially in new hospitals and in respect of the plans of proposed hospitals. The writer says:

"The primary duty of laying down the best known conditions by which the hospital may be rendered the best possible instrument for the treatment of disease being fulfilled, there remains to be recognized the clear duty of rendering it also an efficient teaching institution. I regard this duty as a very close second in importance to the first. Ten years ago scarcely one and one-half per cent. of the medical graduates of Edinburgh had obtained their knowledge of fevers from clinic study. It has only been since the treatment of infectious disease was taken over by the city that anything like general attendance at fever clinics has been given by the students of our medical school. Such attendance has now been made compulsory by the medical authorities. In the new hospital, we shall, I feel sure, as heartily afford facilities for clinic instruction as we have done hitherto in the old building.

"What I desire mainly to urge with regard to the hospital as a teaching institution is that, in constructing our new hospital, the city will have a unique opportunity to render, at a comparatively trifling cost, one of the most valuable services to the Edinburgh school of medicine that it has ever received. That service lies in providing adequate laboratory accommodation for bacteriologic research, and for the investigation of the whole natural history of all kinds of febrile disease. The Edinburgh school has never yet been able to take its proper place in relation to this all-important field of inquiry. The prosperity of its medical school tends, in no small degree, to the general prosperity of the city. Whatever, therefore, the city may do to promote the interest of the medical school, famous as it has been and is still, will be in reality a contribution to the best interests of the city itself. Down to the present time almost all the material which our increasing fever hospital affords for scientific investigation has gone to waste. Notwithstanding what has been generously provided by the Royal College of Physicians at its own charges, we have no adequate means of conducting such systematic inquiry as that which is carried on in the principal medical centers of the continent. The opportunity to meet this great defect now lies to our hand. In every well-appointed fever hospital on the continent, but especially in Germany, well-equipped laboratories are found, where students and graduates conduct methodic and patient investigation into every aspect of every kind of infectious disease. There is also provided a museum for the preservation of preparations made by the investigators, and there is, likewise, adjoining the laboratories, a well constructed postmortem room with the requisite appliances. Let it be the graceful part of the city to provide the necessary accommodation for the purpose now pointed out, which it is in a position to do in the simplest, most economic and yet most effective way. It may be assumed that the medical school will not be slow to do its part in making the best use of facilities so provided."

PRACTICAL NOTES.

Dry Heat of High Temperature in the Treatment of Chronic Joint Affections.—The apparatus which Dr. Wm. E. Wirt employs consists of a copper drum twelve inches long and nine inches in diameter, fitted at each end with a wooden ring and a hood of thick rubber. Having protected the back of the knee with cotton, it is enclosed in the apparatus, and heat applied to the outside by means of a Bunsen burner. Most patients tolerate a temperature between 250 and 300 degrees F., provided three holes are made in the drum to secure proper ventilation and so keep the air dry. This treatment gives immediate relief to pain and increases temporarily the mobility of the joint.—*Boston Med. and Surg. Jour.*, September 10.

Modern Treatment of Progressive Polyarthritis Deformans.—Physicians are too much inclined to consider this disease incurable. Its pathogenesis is still obscure, but it is probably due to some infection which rapidly localizes itself in the nervous system. It attacks both adults and young people, starting with one or two acute seizures, develops from below upward, attacking symmetrically the articulations of the members and then of the trunk, but scarcely ever causes visceral lesions. The usual internal remedies for rheumatic or gouty tendency, salicylate of soda, preparations of colchicum and alkalins in large doses, usually fail to produce any effect in this disease. The only internal medicines which prove effectual are iodin and the iodids combined with preparations of arsenic. It can be commenced with small doses of iodid or tincture of iodin, taken in the middle of the two principal meals, 4 to 5 and even 10 drops of tincture of iodin in a class of wine or of *eau sucrée* or syrup of bitter orange peel in water. Or else a teaspoonful of the following: Two grams each of potassium iodid and sodium iodid in 120 grams of dist. water. After fifteen days of this treatment it is to be suspended and a teaspoonful of the following taken in the same way with the meals in a tablespoonful of iodotannic syrup: Sodium arseniate 0.05 gram in 120 grams of dist. water. The sodium arseniate can be replaced by Fowler's solution taken in progressive doses, increasing from 3 drops at each meal to 6 drops and then decreasing a drop a day until the original dose is reached. This treatment is to be continued several months, alternating the arsenical medication with the iodids. If, as sometimes happens, the iodid is not borne well, the tolerance can be increased by associating with it belladonna and arsenic in the following proportions: Potassium iodid, 4 grams; sodium arseniate, 0.02 gram; neutral sulphate of atropin, 0.001 gram, and 120 grams of dist. water. Take one teaspoonful in the middle of each of the two principal meals, in half a glass of Vichy water (Hauterive). In combination with this internal medication there should be external treatment to ward off the threatening anchylosis in the joints. They must be frictioned with a stimulating liniment, and as the frictions are to be made daily, irritation of the skin should be carefully avoided. The following is a good liniment for this purpose: Liquid ammonia, 50 grams, with 100 grams each of balsam of Fioravanti and spirit of lavender. The frictions may be followed by slight massage, but it is best not to massage the articulations and avoid imparting too active movements to the diseased joints. The different methods of electrization have all proved impotent, even long continued currents applied to the atrophied muscles consecutive to arthritis of this kind. Alkalin and salin baths, very hot and prolonged, sometimes produce good results, as also hydromineral treatment at Aix-la-Chapelle, Dax, Saint-Armand, Ragatz, Bourbonne-les-Bains, Bourbon-l'Archambault, etc. But in the torpid periods of the disease, to combat the articular deformities and restore mobility to the anchylosed members, mud and sand baths are excellent. These have been recommended for many years, but it is only comparatively recently that the establishments at Dresden (Dr. Fleming), Kostritz near Leipsic (Dr. Sturm), at Berlin (Dr. Grawitz) and especially at Lavey in Switzerland (Dr. Suchard), have really rendered these baths practicable. The Grawitz method enables baths to be taken at home in an ordinary bath tub at 122 degrees, but the best results are obtained at Lavey where the establishment is fitted up with appliances for whole or partial baths of sand, evenly heated to 122 and 140 degrees, absolutely free from gravel, clay, calcareous or organic matters. The partial baths are considered best as they do not debilitate. These baths produce an excessive cutaneous secretion which has been found to benefit to a surprising degree sciatic and chronic rheumatism and gout. They also modify very favorably cases of arthritis deformans. The Lavey water is also beneficial in rheumatic disorders.—*Rev. Int. d. M. et d. Ch.*, August 20, from the *Gaz. hebd.*, May 24.

Influence of Cold Baths on the Circulation.—A series of experiments on typhoid fever patients and persons in health, as well as numerous experiments on animals, lead Breitenstein to assert that the number of corpuscles in the blood greatly increases in the course of a cold bath, but as this can not be due to the formation of new corpuscles, it must be that corpuscles more or less stagnant in the viscera and other interior portions of the organism, are drawn to the surface by the effect of the cold bath.—*Revue Int. de M. et de Ch.*, August 25.

Abortive Treatment of Coryza.—Lermoyez orders a snuff made of hydrochlorate of cocain, 50 centigrams; menthol, 30 centigrams; salol, 5 grams; boric acid, 20 grams. A large pinch of this snuff, finely pulverized, every hour. Or a spray of a tepid and boiled solution of hydrochlorate of cocain at 1 per cent. every two or three hours. He also recommends a snuff powder, slightly antiseptic but not irritating, made of hydrochlorate of cocain, 50 centigrams; menthol, 25 centigrams; salicylate of bismuth and sugar of milk, each 5 grams. Brand's method is to wet a piece of blotting paper every hour with 10 drops of the following mixture: Pure phenic acid and liquid ammonia, each 5 grams; alcohol at 90 degrees, 10 grams; acq. dest., 15 grams, and inhale it a few seconds.—*Gaz. Méd. de Liége*, August 27.

Vaselin in Erysipelas.—Koester has been using vaselin in erysipelas for three years and studying its effects as compared with other remedies. He announces now that it is fully as efficacious as the rest, the fever lasts no longer, the lesions extend no more and the complications occur with no greater frequency. It is therefore much to be preferred, as it is so simple, and has none of the inconveniences inevitable with toxic and irritating substances.—*Revue Int. de M. et de Ch.*, August 25.

Maragliano Serum in Tuberculosis.—The *Gaz. degli Osp. e delle Clin.* of Milan, is constantly publishing reports of the results of treatment of tuberculosis with the Maragliano serum, and one cure after another is described, although the concession is made that the cure like the disease itself, is slow. The graphic reports certainly establish the fact that the fever disappears with the use of the serum, and Prof. Massei concludes a recent address on the subject with these words: "The dizzy rate of progress at this end of the century in all that regards therapeutics is shaking up old bones and revealing new ideals. Genius and perseverance have enabled Behring to cancel Napoleon's denunciation of medical science as he stood at the bedside of his nephew dying of diphtheria: 'This terrible scourge to humanity is a disgrace to science.' As an Italian, as a physician, as a man, I prophesy that the anti-tuberculosis serum is destined to as great a fate as the diphtheria antitoxin and that the name of Maragliano will rank in time among those of the great benefactors of humanity, Jenner, Lister, Pasteur and Behring."

Radical Cure of Hydrocele.—Incision with partial removal of the sac is to be resorted to when the sac is found to be thickened, or where it protrudes far into the inguinal canal. A modification of this operation is suggested, which it is believed will greatly simplify the usual procedure: It is performed by making a free incision over the long axis of the tumor, dividing the structures down to the sac, at the same time being careful not to open it. By means of an Allis's dry dissector, the scrotal tissues are quickly separated from the tunic, which is left slightly adherent posteriorly; this being the portion of the sac which covers the cord and is not disturbed. The sac is then made tense, fixed by means of a tenaculum, opened by a touch of the knife, and the fluid allowed to escape. The sac, having been thoroughly dissected from the scrotal tissue, is removed in a single piece by means of the curved scissors. The bleeding vessels are ligated and the wound dried. Should there be much hemorrhage from the edges of the cut sac, it must be controlled by a continuous suture passing completely over the margin. The portion of the tunica vaginalis lying over the cord is swabbed with carbolic acid, the wound irrigated with 1 to 1,000 bichlorid solution, a small drainage tube inserted, and the parts closed by silkworm-gut suture. An antiseptic dressing is then applied. The drainage tube is removed after twenty-four hours; the sutures after the seventh day.—Dr. Orville Horwitz, in *Jour. of Cut. and Genito-Urinary Dis.*, September.

To Remove Fish Bones From the Throat.—Fish bones can sometimes be expelled from the throat by giving from four to six ounces of milk, and forty minutes later an emetic dose of zinc sulphate. The vomit of coagulated milk carries the bone before it as a rule.—*General Practitioner*, July.

Alcohol in the Treatment of Carcinoma.—Dr. H. C. Howard reports satisfactory results from hypodermic injections of absolute alcohol, to which, if there is an open ulcerating surface, is added from 15 to 25 per cent. of tannic acid; this solution is also employed as a dressing to the surface. Of carcinoma of the breast he says: "I have employed this treatment in ten cases. Nine of the patients recovered and are in good health; in one case secondary extension to the liver took place. In these cases, it is my custom to pass the needle through and below the tumor and during the retraction of the needle to inject ten or fifteen minims of absolute alcohol into the tumor. This injection is repeated in four or five points in the tumor. The injections are repeated at intervals of two or three days and the time required for the complete removal of the growth is ordinarily about three months."—*Medical Standard*, Sept.

Treatment of Hemoptysis.—Letters addressed to representative physicians of Chicago, by Dr. Robert H. Babcock, requesting a statement of their treatment of pulmonary hemorrhage, elicited twenty-seven replies from which the following summary was tabulated: Eighteen insist upon absolute physical rest in recumbent or semi-recumbent positions, and three added that they permitted no talking. Cold to the chest is ordered by thirteen, usually in the form of ice. Nine administer opium and eight morphin hypodermically. Ergot is employed by fifteen, a few however stating doubt as to its utility. One administers Tancret's ergotin subcutaneously in doses of from 6 to 8 minims. Eleven are positive that ergot has no efficacy in controlling pulmonary hemorrhage. Six make use of acetate of lead, either with or without opium; two, tannic acid; two, gallic acid; one, dilute sulphuric, and another aromatic sulphuric acid. Six prescribe ipecac—five, the syrup, and one the powder in an emetic dose after the manner of Trousseau. Four give aconite, and two veratrum viride. Salt is recommended by seven, one of whom administers the salt freely, either by the mouth in water or in the food, or by the rectum (℥j of salt to ℥j of tepid water), or subcutaneously in the form of a normal salt solution. Four advise mild laxatives, but do not specify the one employed, with the exception of the advocate of salt, quoted above, who recommends phosphate of soda because "of the physiologic fact that the phosphate present holds the other salins in solution, thus making the common salt taken more effective." One only employs sprays to the larynx and trachea of solutions of "liquor ferri subsulphatis, 10 to 20 m. to ℥j, or the tincture of the chlorid of iron, from 20 to 30 m. to ℥j of water, repeated three or four times daily. One says he uses phenacetin internally, depending upon the cause of the hemorrhage, and (after the attack) rest, light diet, and tincture of iron internally. Two speak of employing ligatures to the extremities, close to the trunk, during the attack, one specifying slight constrictions of the lower extremities to prevent the return flow of blood to the lungs. Dr. Babcock states that for the hemoptysis of active hyperemia, he quiets the cough—preferably by phosphate of codein, ¼ to ½ grain hypodermically, or ½ to 1 grain by the mouth; prescribes syrup of ipecac in frequent doses until nausea is produced; and orders an efficient but not severe aperient, preferably Hunyadi or Rubinat water. If the hemorrhage arise within a cavity and be profuse, he orders the immediate injection hypodermically of one-fiftieth or even one twenty-fifth of a grain of sulphate of atropin. This dose promptly produces pronounced physiologic effects, but is not dangerous, and the initial increase in the heart's rate and vigor is offset by the vasomotor paresis occasioned, which diverts the blood to the periphery.—*Medicine*, September.

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SATURDAY, SEPTEMBER 26, 1896.

THE LANGUAGE OF MEDICAL TERMINOLOGY AND MEDICAL CONGRESSES.

An Eastern medical weekly (published at a center of culture with a university richly endowed in all its departments) editorially endorsed the cant of an English pedant against the use of Greek in medical terminology on the ground that: "Even when scientific coinages have been adopted into the language of the people, it is not always certain that men of fair culture correctly analyze them into their original constituents and real significance." This is clearly an apology for the "fair culture" of the following review of a "quiz compend" in the same number of this weekly: "There is a tendency to the use of Latin headings for familiar diseases which is to be deprecated, stomatomycosis for instance might well be written 'thrush' and 'coprostasis' might be simplified into 'lead poisoning.'" The "fair culture" which could turn into Latin such familiar Greek as stomatomycosis and coprostasis and could mistranslate the last into "lead poisoning," is one evidently not possessed by the vast majority of regular (American) physicians who, whether classically educated or not, have a sufficient working etymologic knowledge of Greek to avoid such blunders. The widespread nature of this working etymologic knowledge of Greek, a credit to the United States, argues for Greek as the international medical tongue. The English medical pedant, so admiringly quoted in the weekly of "fair culture" aforesaid, argues against the growing use of Greek in scientific terminology, with the futile British cant crushed by Macaulay (seven decades ago when he foresaw the conquest of Latin by Greek in scientific terminology) with the following vivid logic (*Edinburgh Review*, February, 1826): "The vocabulary of Latin is miserably poor, and its mechanism deficient both in power and precision. The want of the definite article and of a distinction between the preterite and the aorist tenses are two defects which are alone sufficient to place it below any other language with which we are acquainted. In its most flourishing era, it was reproached with poverty of expression. CICERO, indeed, was induced by his patriotic feeling to deny the charge. But the perpetual recurrence of Greek words in his most hurried and familiar letters and the frequent use which he is compelled to make of them, in spite of all his exertions to avoid them, in his philosophic works, fully prove that even this great master of the Latin tongue felt the evil which he labored to conceal from others.

"The Latin language is principally valuable as an introduction to the Greek, the insignificant portico of a most chaste and majestic fabric. On this subject our confession of faith will, we trust, be approved by the most orthodox scholar. We can not refuse our admiration to that most wonderful and perfect machine of human thought to the flexibility, the harmony, the gigantic power, the exquisite delicacy, the infinite wealth of words, the incomparable felicity of expression in which are united the energy of the English, the neatness of the French, the sweet and infantine simplicity of the Tuscan. Of all dialects it is the best fitted for the purpose both of science and of elegant literature. The philosophic vocabularies of ancient Rome and modern Europe have been derived from that of Athens. Yet none of the imitations have ever approached the richness and precision of the original. It traces with ease, distinctions so subtle as to be lost in every other language. It draws lines where all the other instruments of the reason only make blots. Nor is it less distinguished by the facilities which it affords to the poet. There are pages, even in the Greek dictionaries, over which it is impossible not to glance with delight. Every word suggests some pleasant or striking image, which wholly unconnected as it is with that which precedes or that which follows, gives the same sort of pleasure with that which we derive from reading the Adonis of poor Shelley, or from looking at those elegant though unmeaning friezes in which the eye wanders along a line of beautiful faces, graceful draperies, stage chariots, altars and garlands."

With the nineteenth century evolution of science, Greek, in the contest for existence in scientific terminology, conquered Latin (once the dominant language of culture) as the fittest to survive. That this victory of Greek will continue there seems no reason to doubt. Greek owes its dominance in science not to

the cloistered scholar but to the working scientist for the practical reasons laid down by MACAULAY, whose prophetic notions as to Greek have been more than fulfilled. Greek has naturalized itself in every European tongue as the language of science; even German terms give way to it in all but nativistic German cant.

It is an open question whether the very qualities which render Greek of such value in scientific terminology do not unsuit it for debate, which to-day seeks expression in terse terms. The dominance of English is due to its monosyllablic peculiarity, in which it surpasses all Caucasian tongues. The readiness with which English, adopting loan words, modifies them to its own terse grammatical forms, aids its progress. It is intruding even on the French in France as witness les "five-o'clockers" (women attending 5 o'clock teas), and la "struggle-for-existence." English orthography and pronunciation are its chief defects. Here Greek as a practically dead tongue (destitute of the shiftings due to evolution) has an advantage somewhat offset by differences between British and European continental pronunciation; differences daily becoming less. Greek is not taught as a colloquial but a literary language, which unsuits it for debate. French, the language of diplomacy, as we have repeatedly said, has the enormous advantage (for medical congress) of being a tongue in which foreigners understand each other better than they do native Frenchmen. Italian has the great advantage of approximation to phonetic orthography, but lacks the terseness and energy of French and English. German is widely known as a literary tongue to medical scientists but is involved and open to orthographic and phonetic objections. The difficulties in the way of one language for medical congresses are such as can only be removed by evolution. On this the growth of English-speaking communities must exert an enormous influence. The attempt to found a world language (volapük) on English by German philologists, is a recognition of this influence which must increase with scientific development in North America, Australasia, South Africa and India. Greek will, however, remain the language of scientific terminology. The international medical spoken language will take many decades to produce and meanwhile international medical congresses will probably continue to be polyglot, notwithstanding the ease with which French could be made available for these gatherings.[1]

THE MICROBE AS A FACTOR IN EVOLUTION.

The beneficent as well as maleficent microbe has at last achieved recognition as a factor in human evolution, of which fact a recent review by Prof. E. RAY LANKESTER of a work by a Mr. ARCHIDALL REID ("The Present Evolution of Man," Chapman & Hall, 1896) in the September number of the *Fortnightly Review*, is in evidence. Mr. LAWSON TAIT, many years ago, wrote a paper showing that the law of natural selection appeared to be suspended in the case of man, and Mr. REID, independently recognizing this fact, seeks to find the real agencies that take its place. War, exposure, famine, the struggle with wild beasts, all the elements that entered into the evolution of the savage or primitive man are ineffectual now, and the survival of the fittest must depend on other determining causes than those that so obviously prevail throughout the animal kingdom. Mr. REID finds the chief desired factors in the germ diseases which are now in all parts of the world producing changes and a selective process "tending to the evolution of new generations of men endowed with other qualities than those possessed by the rejected of this agent." Tuberculosis, syphilis, and all the other civilized scourges introduced among and decimating or exterminating the native races of various portions of the world, are there, as elsewhere, only culling out the unfit and leaving their survivors in a higher, or better, or more resistant stage of physical development. What we have long called acclimatization is, according to this author, only a synonym for evolution, and when applied to races instead of individuals is solely the result of the accumulation of hereditary inborn variations.

Whatever of truth there is in these ideas is not new to the medical public, but as applied to evolution it seems to have struck so eminent a biologist as Professor LANKESTER as a novelty. We have long recognized the fact that many non-self-protective infections appear to produce a racial immunity, that familiarity with them breeds a sort of physiologic contempt, and that this is an important element in the adaptation of the species to its special environment. But its relation to general racial evolution or devolution has not so far been a question of very great medical interest.

Disease germs are, however, not the only apparent evils from which Mr. ARCHIDALL REID sees beneficent results to the race, he finds alcohol and opium also elements in the improvement of mankind by their selective action in removing the unfit from among us. In this he is not original; the same idea has been offered by others, notably, by Dr. BERRY HAYCRAFT in his work, "Darwinism and Race Progress." Like all other human vices or weaknesses these bring on individual degeneration and weed out their victims, but that any race becomes immune to their effects is something that so far has not been satisfactorily proven. The findings of the English opium commission, which seem to be taken as gospel by the author and his critic, as to the habituation of the Indian races to opium, were too clearly "for revenue only" and have been riddled by competent authority in India itself. There has been as yet no such convenient authoritative government statement in regard

[1] See the JOURNAL, Vol. XXV, p. 1065. "The International Scientific Language."

to alcohol and his argument as far as this agent is concerned rests only on assumptions.

The question of human evolution under present conditions is, as Professor LANKESTER admits, a very complicated one, and no single cause or series of such can be made to cover all the possibilities. The fact that evolutionists are looking to medicine and pathology for suggestions and theories which, while novel to them, are familiar to the physician is worth a passing thought.

THE SECOND STATE HOSPITAL FOR THE INSANE OF MARYLAND.

Another pariah has been redeemed from opprobrium as a social outcast. The bars and shackles which restrained the sufferer with a mind diseased, have been relegated to the scrap heap upon which thumb-screws and branding-irons have been cast. The creature, formed in the physical image of the God of the Universe, no longer wallows as swine, nor crawls on hands and knees with the beasts of the field, chained by the waist, like Nebuchadnezzar. The "lunatic asylum" has given place to the State hospital, under the superintendence of medical men of the highest professional attainments. The higher medicine of the close of the nineteenth century, which has made State boards of health, State boards of medical examiners and State licensing boards the arbiters of proficiency and responsibility, has lifted the attending physician of the asylum for the insane from the status of a subservient to the steward, manager or executive officer, by whatever title known, to the supreme control and direction of the hospital in which the most pitiable of afflicted invalids are sought to be restored to health, or tenderly cared for when unable to care for themselves.

The medical control of these institutions has brought about a complete revolution in their administrative systems with new methods of hospital construction. Dr. P. M. WISE's notable work in this direction in the St. Lawrence State Hospital at Ogdensburg, N. Y., upon which Governor MORTON has set the seal of approval by appointing him to the head of the Lunacy Commission, is about to be further developed in the Second State Hospital of Maryland, for which the ground has only recently been broken. To the enlightened and progressive late governor of that State, the Hon. FRANK BROWN, and his successor, the Hon. LLOYD LOWNDES, the one a democrat and the other a republican, and to an enlightened and liberal General Assembly, in which party lines and interests were for the time ignored, is due the projection of an institution in which the physician will have the untrammeled opportunity of carrying to its highest possible development the modern rational view of the treatment of insane invalids.

When the necessity for accommodations for the insane of the State, beyond the capacity of the hospital at Spring Grove, near Catonsville, Md., which was completed for occupation in 1872, compelled the legislature to make provision either by the enlargement of the existing institution or the creation of another, it judiciously consulted the superintendent in charge for the past five years, Dr. GEORGE H. ROHÉ, and wisely determined upon a new establishment, and after constituting a Governing Board of Managers, consisting of the governor, State treasurer and State comptroller, as ex-officio members, with six colleagues to serve six years, two being renewed every second year, intrusted to them the selection of a site and the determination of the character of the new institution. In the matter of site they associated with them a professional advisory board consisting of Dr. ROHÉ as chairman, Prof. HENRY M. HURD, of Johns Hopkins Hospital, and Dr. JAMES F. MCSHANE, health officer of Baltimore, with regard to the sanitary and other requirements of the contemplated structure. The result has been the acquisition of the Patterson estate of Springfield, an ancestral domain of 728 acres near Sykesville, on the Baltimore and Ohio railroad, about thirty miles from the city of Baltimore—an ideal locality for the purpose as to elevation, diversified surface, abundant water supply, drainage facilities, amount of arable farm land, accessibility with isolation, well wooded and traversed by rapid brooks discharging into the Patapsco river, with an attractive landscape and as equable climatic conditions as are to be found within the State.

The old Patterson manor-house has been converted into quarters for the superintendent, an annex wing containing the senior assistant's and secretary's quarters, offices, board rooms, visitors' rooms, store-rooms, etc., pertaining to the general administration. The distinctive professional feature of the new establishment is to be the erection of independent groups of hospital buildings, the number of these groups being indeterminate and dependent entirely on the future needs of the State. The several groups are to occupy elevations at considerable intervening distances, and each is to be complete in itself as to the accommodation and care of its invalid inmates, the preparation of food, messing, attendance, etc., with quarters for physicians and attendants, the latter not being allowed to live in the patients' buildings, where they are only when actually on duty, and where they are consequently not permitted to sleep or loaf. The first of these groups is that now under construction on a hill about twelve hundred feet east of the superintendent's quarters, and consists of three detached pavilions and a fourth or "service building." Each pavilion will contain from fifty to seventy-five beds, with common living rooms entirely apart from the dormitories, and a significant departure has been made in the very large proportion of general dormitory space to single rooms.

The practice of isolation is not to be encouraged. The asylum notion is to be subordinated to the hospital idea, the inmates being taught to consider themselves only as sick persons under treatment for remediable ailments. Every inmate who can be employed outdoors will be put to work at farm labor, or during bad weather will be given occupation with others as assistants in the kitchens, store-rooms, laundries, stables and workshops, and all required to go into the wash-rooms after their work and before entering the dining or living rooms. During the summer they will be required to bathe outdoors in an artificial lake along with the attendants or a medical officer. The pavilions are two-storied, and a most commendable feature are the fire escapes—short, wide stairs completely inclosed by brick walls, large enough to empty the several wards in two minutes. Two of the fire escapes in each building are to be used frequently as means of egress, in order to familiarize patients with their purpose.

The first group of buildings is to be completed and occupied before ground shall be broken for the second, thus permitting improvements in plan, the desirability of which experience may demonstrate, and a similar course will be pursued with the third, fourth and as many subsequent groups as may be required, the extent and conformation of the grounds making this possible. Thus it may be claimed that it is an institution that will never be completed while the probabilities of advance and development exist, since in the distant future, when the latest child shall have outstripped the eldest, the latter may be demolished to give place to a better.

When it came to be known that the patrimony of one of the aristocratic families of the State was to become a "lunatic asylum," the sentiment of the neighborhood was outraged, many of the residents being in real dread of the fancied dangerous element coming among them. Curious visitors and tradesmen after a while found the farm and tenant houses on the estate occupied provisionally by persons whom they supposed to be all employés, and only later discovered to be chiefly lunatics—the dreaded "madmen," and saw the customary operations of the cultivation of the extensive fields performed by men whom from their dress they learned to recognize as wards of the State. Admiration for the humane methods they saw in operation followed upon the sense of security from possible danger from the crazy folk; the local dealers and shopkeepers profited by the vicinage of a large able-bodied community, until now all classes are proud of the splendid establishment which they foresee is to be one of the most notable of its kind in the world.

We have felt it due to the profession that this admirable and satisfactory consummation of the modern idea of caring for the insane should be made known by this brief sketch of its details, looking upon it as a matter in which every member of the ASSOCIATION should feel the highest pride, and as further illustrating the ability of medical men to exercise administrative and executive functions as well as the merely therapeutic and sanitary duties of State and National establishments. This has long been the practice in the United States Army and Naval Hospitals, and the United States Government Hospital for the Insane, although not many years ago a retrograde attempt was made by the Navy to transfer the executive control of these to officers of the line, in face of the unsatisfactory working of this plan in certain European services; but it is now so well understood in this country by educated laymen legislators, that the proper care of the sick involves something more than the mere administration of drugs, and that the subject of expenditures for quarters, food, fuel, light, clothing and attendance is a necessary element of that care and is, therefore, the proper function of the medical officer and one he can only properly perform unhampered, that no fear need be entertained that his right to do so will ever again be questioned. Of this the prospective success of the Second Hospital for the Insane of the State of Maryland, under its able, energetic and progressive superintendent, Dr. ROHÉ, in whom the State authorities have shown their confidence by intrusting him with its erection, development and control, gives additional assurance.

THE DISFIGUREMENTS OF SMALLPOX.

In the last volume of the St. Thomas Hospital Reports, Dr. ROBERT CORY contributes an interesting line of proof as to the condition, as to vaccination, of persons who are scarred by smallpox.

We are apt to forget how great a blessing vaccination is until an outbreak of smallpox opens our eyes to the terrible nature of the disease from which the labors of JENNER protected us. Even those who live through the sufferings of variola not infrequently bear traces of the attack in loss of sight or painful disfigurement for life. Noticing the tendency to belittle the value of vaccination, Dr. CORY commenced in November, 1884, his investigations with the intent of placing on record the result of his labors. In 1888 he had collected notes of 152 cases, which he published in the "Transactions of the Epidemiological Society" of that year. Up to the time of writing he had collected 448, of these, 210 were admittedly unvaccinated before their attack of smallpox, or 46.87 per cent., and these admittedly unvaccinated people had smallpox at the average age of 6.58 years. Continuing he remarks:

"This age is indeed high when compared with the average age individuals were attacked with the disease in the last century; however, there are three circumstances to be borne in mind. First, the greatly

diminished prevalence of smallpox in the present day to that which obtained in the last century. It follows, therefore, that the opportunity to become affected is accordingly not so great, and this would delay the average age at which unvaccinated individuals contract the disease. Secondly, a large proportion of the unvaccinated individuals die of the disease, and these would, in the main, be infants; hence, we have a considerable portion of the youngest eliminated by death. And thirdly, only those who have been obviously pitted with smallpox are dealt with in this paper."

The editor of the *Medical Press and Circular*, thereupon offers the following comment:

Of those who professed to having been vaccinated 23.44 per cent. had no scar of vaccination. And, as a matter of fact 70.31 per cent. of those pitted by smallpox bore no evidence of having been vaccinated. Now, as Dr. CORY says, the proportion of the unvaccinated to the vaccinated in London is not more than 5 per cent., yet we have seen that people pitted with smallpox are to the extent of 52.51 per cent. unvaccinated. If there be no protective power in vaccination, how can this be explained? We think our readers will agree with the author of the paper —that vaccination is a marvelous preventive of smallpox, and that his labors have done much to demonstrate the fact.

CORRESPONDENCE.

Professional Complaints.

In a timely article of the *Medical and Surgical Reporter*, with the above caption, the writer touches upon many points which might be amplified almost into treatises.[1] The inspiration of the editorial is a symposium by six teachers in a contemporary popular magazine regarding the hardships of their position in life, the emphasis being upon the monotony of their vocation, inadequate pay and the influence of politics. Of the first of these complaints, we are called upon to say but little inasmuch as a grievance it is common to every pursuit; of the second, the complaint of our own profession, is entitled to more consideration, while the third seems never destined to be divorced from the growing paternalism of all institutions.

Our writer says very truly: "We believe there can be no dispute that the professional class is too large. Our own profession numbers at least twice so many men as are needed to care for the health of the country; the legal profession, even with its many collateral opportunities, is overcrowded, and a considerable share of the clergy are a dead weight on society. . . . . In professions like that of the teacher which can be filled with comparative ease from without, candidates inevitably tend to become the puppets of outside politics and the man who prefers to stand upon his own merits becomes unpleasantly aware of the pernicious tendency. On the other hand, the professions at whose entrance greater barriers are erected, like our own, or the ministry or the military are pervaded by a tendency to the development of an intra-professional intrigue which perhaps gives rise to more feeling and has as great disadvantages as the methods often brought to bear to secure advancement in the profession of pedagogy. Such things are no doubt regrettable, but so long as the supply is greater than the demand and the spirit of competition for mere place is so keen there is no remedy."

By way of corroboration rather than addition, we may continue the subject with other pertinent reflections, chief among which are the reports of absurdly large incomes. These partake of the egotistic form and indirectly, as intended, furnish pabulum for public gossip. A little analysis of the factors at once exposes the fallacious statement. Every physician's duties are more or less personal, in truth do not belong to the class that can be made available by the labor of others. Here at once is a limitation to anything beyond a mere living. The temptation to embark in enterprises based upon the honesty of promoters is strong we know, but all faith in the childlike blandness of human nature is doomed to discomfiture. As such the physician should content himself with his lot in life, that of being "passing rich" upon a moiety, of taking the consequences of what his business friends not unjustly style foolish philanthropics, and in order to avoid the sneers of his brethren we might even advise him to cherish some variety of code in secret. What else can he do but be content, he can not hope for wealth, inasmuch as he is destined to end his career, if long enough, with a salary or sanitarium. But hold, virtue is its own reward and the much quoted "room at the top" converges into an apex upon which an equilibrium can with difficulty be maintained. At all events, what one of all our host would enjoy a solitude where our ambitions could be no better satisfied?

UMBRA.

[1] See also this JOURNAL, August 8, "Medical Grievances."

BOOK NOTICES.

Index-Catalogue of the Library of the Surgeon-General's Office, United States Army. Authors and Subjects. *Second Series*, Vol. i., A—Azzuri. Washington: Government Printing Office. 1896.

This volume, according to Deputy Surgeon-General D. L. Huntington, includes 6,346 author titles, representing 6,127 volumes and 6,327 pamphlets. It also contains 7,884 subject titles of separate books and pamphlets, and 30,384 titles of articles in periodicals. The value of the Index-Catalogue to medical science can not be over-estimated, and it is pleasant to know that the work is appreciated in Europe as well as in America. Congress, in making annual appropriation for this work, has acted wisely.

The arrangement of the volume is the same as that of the first series.

Tenth Annual Report of the State Board of Health of the State of Ohio for the year ending Oct. 31, 1895. Columbus: 1896.

This volume shows that this Board is keeping pace with the sanitary advances made in other States, but they are seriously handicapped by being without any proper system of vital statistics. "No one," says the report, "knows the number of deaths or the number of births that occurred in Ohio during the past or in any other year. Thousands die and thousands are born of whom no official record is made or can be obtained. Crime is made easy, the settlement of estates and legacies difficult, and a study of the causes of death and means for their removal impossible from the lack of such records." The work is edited by Dr. C. O. Probst, the efficient secretary.

Food in Health and Disease. By I. BURNEY YEO, M.D., F.R.C.P., Professor of Therapeutics in King's College, London. New (2d) edition. In one 12mo volume of 592 pages, with 4 engravings. Cloth, $2.50 Philadelphia and New York: Lea Brothers & Co., publishers. 1896.

This book, which for some inscrutable reason appears to have been dipped in an indigo pot, is a valuable reference book for all interested in practical dietetics. Indeed, it might be fairly claimed for this study that every rational human being is practically interested in the subject, some of them intensely so. A work therefore upon such a subject naturally has a very wide circle of readers. Dr. Yeo has divided the work into two principal parts, the first of which relates to the food in health, giving its

nature, origin and purpose, classification, nutritive value and uses of the different classes: Animal foods, vegetable foods, beverages and condiments, et cetera. The second part treats of food in disease, in general, and with reference to particular diseases, artificial digestive agents, hospital dietaries, sterilization and Pasteurization of milk, and concluding with select recipes for invalid dietaries and a copious index. No general practitioner can afford to be without a good work on dietetics, and this of Yeo's takes rank with those of the higher order.

A Manual of Materia Medica and Pharmacology. Comprising all Organic and Inorganic Drugs, which are and have been Official in the United States Pharmacopeia, together with important Allied Species and Useful Synthetics. For Students of Medicine, Druggists, Pharmacists and Physicians. By DAVID M. R. CULBRETH, M.D., Professor of Botany, Materia Medica and Pharmacognosy in the Maryland College of Pharmacy, Baltimore. In one handsome octavo volume of 812 pages, with 445 illustrations. Cloth, $4.75. Philadelphia and New York: Lea Brothers & Co., publishers. 1896.

This work treats of official drugs; those once official and subsequently dropped; allied species of organic drugs and the unofficial synthetic compounds. The work is thus seen to cover a somewhat different field from the ordinary work on materia medica. Botany has been fully drawn upon in the description of medicinal plants, and the illustrations are superb. We think the author has made a serious mistake in ignoring the Centigrade thermometric scale and the metric system of dosage. The author says this was not done to disparage the metric system but because the old apothecaries weight is still universally used. This will indeed be news to the Committee on Revision of the Pharmacopeia. If all books were constructed on this principle no reform could ever be effected, or any advance made in the methods of scientific knowledge. We regret this the more as the step is deliberately taken in the face of the movements now going on in Great Britain, and the past decisive action of all our own scientific bodies.

From other standpoints the book can not be too highly commended.

The Methodical Examination of the Eye, being part 1 of a guide to the practice of ophthalmology for students and practitioners. By WILLIAM LANG, F.R.C.S., Eng. Cloth, pp. 96. London and New York: Longmans, Green & Co. 1895.

This work was written for the instruction of the surgeon who is beginning the special study of ophthalmology and as well for students. It is well illustrated, and its teaching is sound.

A Pictorial Atlas of Skin Diseases and Syphilitic Affections. in in photo-lithochromes from models in the museum of the Saint Louis Hospital, Paris, with explanatory wood-cuts and texts. By ERNEST BESNIER, Physician to the Saint Louis Hospital, Member of the Academy of Medicine, President of the Dermatological Society of France; A. FOURNIER, Physician to the Saint Louis Hospital, Professor of the Faculty of Medicine, Member of the Academy of Medicine; TENNESON, Physician to the Saint Louis Hospital; HALLOPEAU, Physician to the Saint Louis Hospital, Member of the Academy of Medicine, Professor agrégré of the Faculty of Medicine; DU CASTEL, Physician to the Saint Louis Hospital; with the coöperation of HENRI FEULARD, Curator of the Museum, formerly Chef de clinique of the faculty at the Saint Louis Hospital; Secretary L. JACQUET, Médecin des Hôpitaux, formerly house physician to the Saint Louis Hospital, secretary of the Dermatological Society of France. Edited and annotated by J. J. PRINGLE, M.B., F.R.C.P., Assistant Physician to the Department for Diseases of the Skin at the Middlesex Hospital, London. London: The Rebman Publishing Co., Ltd., 11 Adam Street, Strand. Philadelphia, Pa.: W. E. Saunders, Publisher, 925 Walnut Street. For sale by subscription only. Part 4. Price, $3 a part.

The contents of this volume consist of four plates: Mycosis Fungoides, Psoriasis, Tubercular Leprosy of the Face, Mycosis Fungoides, and various illustrations accompanying the text. We know of no work which will bring before the reader the magnificent models in the museum of the famous Saint Louis Hospital, so well as these. The coloring is very close to life and is an aid to diagnosis alone; even without the explanatory text it would take the highest rank.

Hare's Practical Diagnosis.—PRACTICAL DIAGNOSIS. The use of Symptoms in the Diagnosis of Disease. By HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia, Laureate of the Medical Society of London, of the Royal Academy in Belgium, etc. In one octavo volume of 566 pages, with 191 engravings and 13 full-page colored plates. Cloth, $4.75. Lea Brothers & Co., Philadelphia and New York. 1896.

There are few medical subjects Dr. Hare has not written upon, and his flowing pen not only ornaments the topics touched, but he seems always to hit upon the most practical way of conveying instruction. We recently had the pleasure of noticing a work on diagnosis, in which chemistry of the normal and pathologic fluids, was made to assume the chief rôle in diagnosis. Here we have a work in which semeiology, the visible symptoms with which we are confronted, is made to tell the story of the patient's pathologic condition, the natural or Hippocratic method. The work is profusely illustrated and the illustrations are fine. The title of the volume is not a misnomer in this instance, for it is indeed a *practical* diagnosis. An excellent index concludes the volume.

A Vest-pocket Medical Dictionary.—Embracing those terms and abbreviations which are commonly found in the medical literature of the day, but excluding the names of drugs and of many special anatomic terms. By ALBERT H. BUCK, M.D. New York: William Wood & Co. 1896.

This is truly a vest-pocket book, being 3½ inches long, 2½ inches wide and ⅝ inch thick! This little book will be found an excellent one for student's use. There may be critics who would object to see "Paget's Disease of the Nipple" defined as an "eczema," or the statement that "pyo-nephrosis" is a necessary or common sequence of hydronephrosis; and above all, students should be taught the etymology of words used in medical science, altogether omitted from this little lexicon. Nevertheless its form is most convenient, and it is destined to be immensely popular. We therefore urge the author to include the etymon of each word in the next edition.

PUBLIC HEALTH.

Typhoid in Kankakee (Ill.) Insane Asylum.—It is reported that there are thirty cases of typhoid fever at the Illinois Eastern Hospital. Impure drinking water is supposed to be the cause.

The Female Criminal and the Prostitute.—The new book with this title eompletes Lombroso's remarkable work on the "Criminal," which is already a classic in anthropology. It is divided into several parts: The normal woman, the criminal woman, anthropometric and pathologic anatomy, biology and psychology of the female criminal.

Ontario Boards of Health Must act for Themselves.—The Ontario court of appeals holds, in the case of Township of Logan v. Hurlbut, decided in June, 1896, that, under the laws of that province, where members of a local board of health allow a person suffering fram an infectious disease to go into an adjoining municipality, they are liable to repay to that municipality moneys reasonably expended in caring for the sick person and preventing the spread of the disease.

Ohio Law as to Public Buildings, Extended.—Section 2572 of the Revised Statutes of Ohio has another time been amended, in this instance extending the penalties which it denounces for not providing proper exits, means for extinguishing fires, or not having the required inspector's certificate relating thereto, to the owner or person having control of any college, academy, seminary, infirmary, sanitarium, children's home, or other building used for the assemblage or betterment of people, in a municipal corporation, or in a county or township of the State, which county or township provision is also a new introduction

to the section, and will equally apply to the owner or person in control of a hospital, medical institute, asylum, opera house, hall, theater, church, or school house, previously being the persons mentioned in the law.

Tobacco and Cholera.—A recently published report of investigations of the effects of tobacco during the epidemic of cholera at Hamburg states that there were no live microbes after twenty-four hours in the cigars made up with water containing 1,500,000 cholera microbes to the cubic centimeter. There were no traces of microbes to be found in any of the cigars manufactured at Hamburg during the course of the epidemic. The microbes die in half to two hours exposure to tobacco smoke, Brazil, Sumatra or Havana tobacco. The smoke of any cigar kills the microbes. The smoke kills in five minutes all the microbes in the saliva. Another fact established is that none of the persons employed in the tobacco factories at Hamburg, contracted cholera.—*Gaz. degli Osp. e delle Clin.*, August 20.

Typhoid Fever Cause by Ice Cream.—According to the *Boston Medical and Surgical Journal*, August 27, a considerable, but not widely extended, outbreak of typhoid fever occurred during the latter part of July in the town of East Barrington, N. H. The cases were all traced to a single source. The first case was an unrecognized one, the patient being unwell but helping about the house and doing part of the milking. It is supposed that he must have in some way contaminated the milk, as by going to stool and not washing his hands before returning to his milking. The water supply was carefully examined and found to be all right. On Friday evening a party was given at the house and the guests were given ice cream made at home from the milk supply above referred to. Within the next ten or fourteen days fourteen of the guests came down with typhoid fever—eight in the town of Barrington, of whom one died; two in Lee; one each in Dover, Rochester and Woodbury, N. H., and one in Haverhill, Mass. All of these out-of-town cases were guests at the party. No other cases occurred in the town, and all were partakers of the cream.

The Offensive Water-Supply of Brooklyn.—The *New York Times*, September 5, refers as follows to the water-supply of Brooklyn, that has been the source of numerous complaints during the past two months: "The people of Brooklyn will read with a feeling of relief that the reports which show that at last both the Department of City Works and the Health Department are engaged in a thorough investigation concerning the condition of the water-supply. The engineers are inspecting the several sources from which water comes, and the Health commissioner has been authorized to spend a little money for the chemic and bacteriologic analyses which are needed. The examination of the water in the reservoir of final distribution seems to prove that the supply has not been polluted at the sources, but is affected injuriously after it has passed into the mains and delivery pipes.

"In some parts of the city the water has been bad for many weeks. It may not have been loaded with the germs of the so-called water-borne diseases, but it has been repulsive in appearance and odor and clearly unfit to be used. It is probable that the health of the people has suffered but little by reason of the presence of the objectionable matter in the supply, but even if this matter be only a vegetable growth the accumulation of it in a condition of decay should be prevented, because the presence of it can not be beneficial and may be injurious to consumers. With respect to the treatment of this problem there has been inexcusable delay. It is admitted by the Department of City Works that the water has been in this bad condition for about two months. The facts now disclosed by recent inquiry might have been ascertained some weeks ago. They should be used promptly and with energy now and the good name of the Brooklyn water-supply should be restored if an effective method of purification can be devised."

The Mayor of Brooklyn has given to the Department of Health, from the emergency account, the sum of $3,000 to be expended upon a survey of the water-sources, reservoirs and conduits. It is believed that the city authorities have been awakened to the importance of a permanent bureau of water-investigation—both chemic and bacterial—to be located upon the water-shed, and at some distance from the city. It is the estimate of those who are expert in the establishment of such a laboratory that not less than $20,000 will be needed, in the first year, for plant and running expenses. It is probable that this grant will be made, and be placed in the hands of the Department of Health.

Higher Education in Missouri.—State Superintendent of Schools, John R. Kirk, who has just finished the examination of applicants for admission to the medical colleges in the cities of St. Louis, St. Joseph and Kansas City, has made his report public. The examinations were carried on under the direction of the State Board of Health and were the result of the agitation last winter against the wholesale graduation of licensed physicians who were incompetent to practice their profession and were a menace to the public health. Although the examinations prescribed by Superintendent Kirk were not severe and were calculated to test the student's general information, and did not require a technical knowledge of any of the branches touched upon, over one-half of the prospective medical students failed to pass them. On this account the outlook for a large or even fair matriculation of students for the coming year is very poor. Of the three cities visited by Superintendent Kirk, only twenty-four applicants took the examination, and of these only eleven succeeded in passing. Last year at this time there were nearly 100 freshmen already admitted to the three medical colleges in Kansas City alone. Dr. Willis P. King, secretary of the State Board of Health, who has been more instrumental perhaps than any other member of the board in securing the new regulations, defended it with much vigor.

"I am heartily in favor of the new system," he said. "It can not help but effect a great and beneficial change in the present way of turning out incompetent doctors. We have in this State between fifteen and eighteen so-called medical colleges. That is a third more than in the State of New York and twice as many as there are in any other State. Our schools have been like brick mills. All that was necessary was enough mud, and the doctors were manufactured as fast as the machines could be operated. I look for many of these little institutions to close, for the licensing of young and incompetent men to go out into the State and experiment on helpless citizens is a crime and an outrage which I propose to try and stop. There are too many incompetent physicians now, and the rapid overproduction of them is alarming to one who knows what butchery and death their ignorance can cause. The State Board of Health will keep up its fight, and in time we hope to rid the State of this class of practitioners."

Other States would do well to follow the example of Missouri.

Medical Diplomas in Michigan.—A great many inquiries are received at the department of State in regard to the existence of a law providing for the registration of physicians, and frequent questions are asked as to the validity of certain diplomas, issued without examination or residence, and ostensibly entitling their possessors to the right to practice in Michigan. As an example of this class of correspondence, the following extract from a letter received by Secretary of State Gardner from a Canadian attorney, may be quoted:

"Is it necessary for a physician to register with any State medical association or council before he can lawfully practice medicine in your State. Is the diploma of the Wisconsin Eclectic Medical College, of Milwaukee, conferring the degree of M.D. (without residence or examination), upon a pharmacist duly licensed by the province of Ontario, sufficient in and by itself, to permit its holder to practice the profession of medicine, in all branches, in your State?"

The reply of Secretary Gardner contains information of interest to the holders of fraudulent diplomas, as well as to the county clerks who have in many cases registered them, supposing such registration compulsory under the law, although well knowing the fraudulent character. The reply was as follows:

"Registration of diplomas is required only in the office of the county clerk. No State board or council passes upon the validity of diplomas. There is nothing in the law requiring or authorizing a county clerk to register a bogus diploma, *i.e.*, one issued without residence or examination. The act refers to the 'graduate' (presumably in the usual sense), of any legally authorized medical college, and elsewhere provides for the return by supervisors of graduates of 'regularly established and reputable colleges.' To this category the possessor of a diploma issued by a fraudulent institution evidently does not belong."

ASSOCIATION NEWS.

Section on Obstetrics and Diseases of Women.

Milo B. Ward, Chairman, Topeka, Kan.; George H. Noble, Secretary, Atlanta, Ga.; Executive Committee, Jos. Eastman, Indianapolis, Ind.; F. H. Martin, Chicago, Ill.; J. T. Johnston, Washington, D. C.

As an effort has been made to keep a mailing list of the members of the AMERICAN MEDICAL ASSOCIATION interested in the Section on Obstetrics and Diseases of Women, please be kind enough to publish a notice to the effect that all members desiring to participate in the proceedings or to attend the meetings of this Section should send their names and addresses to the undersigned, as no communication concerning papers, program, etc., can be had with members not upon the proposed list. Most respectfully,

GEO. H. NOBLE, Sec'y, 186 S. Pryor St., Atlanta, Ga.

Other medical journals please copy.

The Ophthalmologic Section Reprint.

Gentlemen desiring to subscribe for the reprint of the Ophthalmologic Section, 1896, will please send their names to this office at once. Unless seventy-five subscriptions are received the volume will not be printed.

SOCIETY NEWS.

Utah State Medical Society.—The second annual meeting of the Utah State Medical Society will be held at Salt Lake City, Utah, October 6 and 7. Program: Address of welcome, Hon. Heber M. Wells, Governor of Utah; The etiology and management of suppurating pleurisies, Philo E. Jones, Salt Lake City; Amputation of thigh for tuberculosis of knee joint, with cases, H. J. Powers, Ogden; When and how should the State assume sanitary control in new settlements? Maj. A. C. Girard, Surgeon U. S. A.; Neurasthenia, R. W. Fisher, Salt Lake City; Auto-intoxication, Augustus C. Behle, Salt Lake City; Suppurative Keratitis, S. L. Brick, Ogden; A report of some cases of skin grafting in the treatment of burns and ulcers, S. H. Allen, Provo; Lead poisoning, K. A. Kjos, Salt Lake City; Irregularities of typhoid, Chas. F. Wilcox, Salt Lake City; Evolution and revolution in pelvic surgery, H. D. Niles, Salt Lake City; Hysterectomy, F. S. Bascom, Salt Lake City.

National Association of Nurses.—A convention representing different training schools and alumnæ associations, met September 2, in order to organize an association of nurses, which shall cover the United States and Canada. A constitution was drafted which will be submitted to the different bodies represented for their ratification. The object of the proposed association is to unite, protect and elevate the profession of nursing, and in drawing its outlines those of the medical associations have been to some extent copied, and the preamble of the AMERICAN MEDICAL ASSOCIATION largely drawn upon. The training schools and alumnæ associations included in this convention were the Royal Victoria; the Toronto General; the Massachusetts General; the New Haven; Presbyterian of New York City; Bellevue, and the New York; the Brooklyn City; the Orange Memorial; the Pennsylvania; University of Pennsylvania, and the Philadelphia; the Johns Hopkins; the Garfield; the Rochester City; the Illinois; the Farrand; and St. Luke's, Chicago.

Virginia State Medical Society.—This society began its twenty-seventh annual session at Rockbridge Alum Springs, Va., September 8–10, with a large number in attendance. The session, was opened by an address of welcome from Hon. A. H. Graham, of Texas, on the part of the Springs management. This was followed by an address to the public and profession by Dr. C. T. Brady of Marion, Va. His subject was "Moderation and Aim in Education." The speaker dwelt with especial emphasis on the importance of universal temperance and the avoidance of excesses in youth. Other interesting papers followed. The officers chosen for the ensuing year were President, George Ben. Johnston of Richmond; vice-presidents, W. C. Day of Danville, T. W. Simmons of Martinsville, L. H. Keller of Luray; recording secretary, Landon B. Edwards of Richmond; corresponding secretary, Jno. F. Winn of Richmond; treasurer, Richard L. Styll of Hollins. J. Allison Hodges was elected to deliver the address to the public and profession at the next annual session at the White Sulphur. Dr. Hunter McGuire's prize of $100 for the best essay on the status of serum therapy was awarded to Dr. Charles M. Blackford of Lynchburg.

Wayne County Medical Society.—At the regular meeting of the Wayne County Medical Society, Thursday evening, September 10, Dr. R. Harvey Reed read a paper on "Malignant Neoplasms." The meeting was well attended. Dr. Theo. A. McGraw, in discussing the subject, said: "The subject of malignant neoplasms is such a large one that one hardly knows where to begin in discussing it. It has been the prevailing opinion, until very recently, that all of these troubles arise exclusively from local conditions or local irritations, and that there is nothing constitutional about a cancer or sarcoma or any other tumor in the beginning; that is to say that whatever is constitutional is the result, not the cause, of the affection. I think that modern pathologists will hardly concur now in the theory of the purely local origin of cancers and tumors without being able, nevertheless, to closely define what there is in all neoplasms that is constitutional. I believe that there is something constitutional in every neoplasm or growth, not only of a malignant form, but of a so-called local or benign form, and that the origin in some way takes place directly from the cells which compose it, and that they begin to grow rapidly. I can conceive no other way to account for the growth of any tumor unless there is that loss of control upon that part of the organism so that the cells multiply and the part enlarges and grows just so fast and no faster, in other words, the control which allows of tissue growth just sufficient to the needs of the organism; in the case of benign tumors the check on multiplication is not so entirely lost as in some forms of malignant growths. When we have a growth of any tumor, it means that whatever it is that keeps away or retards growth in that part, has been lost or has been weakened, so that my conception of a tumor is something constitutional. Now the Doctor has described very well the different forms of malignant growths to which we have to adapt our means of treatment. The only treatment in my estimation is complete and thorough extirpation. Toxin has been tried in malignant tumors of every description in St. Mary's Hospital, and in private practice, and in no one case have we had any success whatever. I was talking with some New York surgeons when we had them here, and their report was that no one excepting Dr. Coley had

had any success with toxins in the treatment of malignant growths. Now I do not think just as Dr. Reed says, viz., that there is one case in a hundred curable by this morbid treatment, but the future may open up the possibility to us of something good. As far as our present knowledge is concerned there is just one thing to do with a malignant tumor, and that is to extirpate it, and extirpate it thoroughly, and if there is one need that modern surgery has now it is the perfecting of radical methods of operation. The surgeon does not see all cases of cancer or sarcoma. Why, just take cancer of the neck of the uterus and turn it over to the surgeon. He operates and expects to cure his patient. The surgeon should always be consulted in cases of malignant growths; the sooner the better; the earlier the more chance for final cure and the saving of life."

Dr. Hal C. Wyman said: "I would like to call attention to some successful methods and some unsuccessful ones. The particular notion in regard to cancer, and I use the term in a general sense, is that it is something that is to be helped by some irregular or clandestine method or operation, and for that reason quacks thrive. It is my belief that the regular physician may accomplish a great deal by constantly preaching the absolute necessity of early operation. If he will call up to the minds of the laity or patients suffering from carcinoma or sarcoma, that under modern methods of asepsis, and under anesthesia, the removal of these growths, when done early, is not fraught with much danger to life, or with any pain; in other words, that the removal of these neoplasms, when done by a scientific surgeon, is not essentially dangerous. If he will bring out these facts prominently before the public we could see these cases earlier and could have the privilege of removing tumors in time. The early removal of these tumors frequently leads to their non-recurrence. Even when they reappear a second time or a third time, or even a fourth time, removal has finally been followed by non-reappearance. I can see the necessity for the public to understand the need of early operation, and if they would only realize the fact that under anesthesia there is no pain and almost absolute safety, and also that with asepsis the danger from the wound is only a minimum, they would appear earlier for operation. So far as the operation is concerned it may be performed, except in rare cases without much danger, and it is the duty of every medical man to use every means in his power to secure an early operation. I am sorry that the profession is so at sea in regard to the matter, but we may find something in the future that will be of service to us. I can see the possibility of some antitoxin for cancer, like the diphtheritic antitoxin, and one which may take the place of operation. I would not say one word against the endeavor that is being made to find a cure. I think when a physician allows one of these cases to leave his hands and turns it over to the quack, he does wrong. I am glad that we have a little hope in regard to the possibility in the near future of the discovery of some toxin or antitoxin which will prove curative."

Dr. R. Harvey Reed, in conclusion, said: "You are all well aware of the fact that cancer and consumption have from the most ancient times been looked upon by the laity as incurable, and that is the reason why, as my friend, Dr. H. C. Wyman, says, these patients go to the quacks, because the quacks hold out luring inducements, the like of which we are not permitted to advance on account of our medical ethics. I hope that whatever I have said here to-night will stir up the profession to investigate this matter, and above all means do not turn over these cases to some one who knows nothing about handling them, and above all things do not allow them to go to the so-called quacks. It is the combined study, the combined work upon these diseases, that helps us in the treating of them. I believe that in the study of these diseases that we should, as do our explorers of the North Pole, keep right on, no matter what the result. In other words, keep right on till you get there."

NECROLOGY.

Charles H. Chalkley, M.D., at Richmond, Va., of inflammation of the brain, September 13, aged 36 years. He graduated from the Richmond College and entered the Medical College of Virginia, from which he graduated in 1880. Soon after he became a physician, he was appointed adjunct professor of chemistry at the Medical College of Virginia. He held this position until the University College of Medicine was established when he accepted the chair of chemistry and also became professor of medical jurisprudence and toxicology, which he held up to the time of his death. He also held the professorship of chemistry at the Mechanics' Institute.

F. W. Hance, M.D., a pioneer physician of Freeport, Ill., at his home in this city September 16, of heart disease. He was born in Ohio in 1822 and was graduated from the Medical Department of the University of Pennsylvania in 1849. He came to Freeport in 1853. He was elected mayor of the city in 1864 and also served as president of the Second National Bank.

D. J. Mosher, M.D. (Detroit Medical College, Mich., 1869), at Norwich, N. Y., September 8.——Orin M. Ward, M.D. (Bellevue Hospital Medical College, New York City, 1877) at Duncan Falls, Ohio, September 14, aged 45 years.

James Edgar Chancellor, M.D., at Charlottesville, Va., September 11. He was descended from a long line of Americans of English descent—the lineage running back to 1066. When Gaultier le Chancellor, as law officer of the crown, crossed over to England with William the Conquerer, as his chief legal advisor, the surname of Gaultier was dropped and it came by successive changes to be written Chancellor. From this family the name of the town of Chancellorsville is derived, a town made famous by the sanguinary conflict which took place there during the recent civil war. Dr. Chancellor was born in Chancellorsville, Va., Jan. 26, 1826; was educated at the classical Academy at Fredericksburg, Va.; matriculated as a student of medicine in the University of Virginia, session 1846-47, and graduated from the Jefferson Medical College, Philadelphia, 1848. Immediately after graduating he entered into an active practice, locating in his native county, at Chancellorsville. Subsequently he removed to Courtland, the county seat, where he enjoyed a large practice up to the outbreak of the civil war. In 1861 was commissioned assistant surgeon in the Confederate Army, and assigned to duty at the General Hospital, C. S. A., at Charlottesville, Va.; was commissioned full surgeon in 1862. In the spring of 1864 he was sent to the battle-fields of Wilderness, Spottsylvania Court House, and Richmond, as a member of the reserved corps company of surgeons.

In October, 1865, he was made demonstrator of anatomy in the Medical Department of the University of Virginia, which position he filled until shattered health, from a dissecting wound, necessitated his resignation in 1872. He was a member of the Medical Society of Virginia since 1871, and its president in 1883; permanent member of the American Medical Association since 1875, and the American Public Health Association since 1878. In 1885 he served as professor of diseases of women and children in the University of Florida at Tallahassee, and also filled the chair of anatomy in the same school; he resigned both chairs and, returning to Virginia, was appointed by the governor a member of the State Medical Examining Board in 1890. He has made frequent contributions to the literature of his profession, among which are named "An exhaustive paper on the origin and use of natural mineral waters of the United States;" "Ancient medicine, its history, etc.;" "Cremation and inhumation compared;" "Uses of iodoform in specific diseases;" "Removal of fibroid growth involving right parotid gland," 1863.

William Henderson Wilkes, M.D., died in Waco, Texas, August 14. He was born in Raymond, Miss., in 1833, and

enlisted in the Confederate Army as a private, from which he was retired with the rank of Brigadier-General. In 1868 he began practice in Waco, where he remained with the interval of a year during which he was a professor of obstetrics and diseases of children in Kansas City. In 1882 he was elected mayor of his city, and in 1885, was reëlected. In 1888 he declined the chair of the theory and practice of medicine in the Texas Medical College in Galveston. In 1891 he became president of the Texas State Medical Association. In April of the present year he again became mayor of Waco, and died in office after an illness of six weeks. He was a graduate of the University of Nashville in 1855.

WILLIAM M. MCLAURY, M.D., at New York City, September 8, of cerebral hemorrhage. He had been in poor health for some time. Dr. McLaury was graduated from the University of the City of New York, Medical Department, in 1860. He was a member of the New York County Medical Society, the Academy of Medicine, the Physician's Mutual Aid Association, the Northwestern Medical and Surgical Society, New York Society of Medical Jurisprudence and New York Academy of Anthropology.

WILLIAM CRANCH BOND FIFIELD, M.D., at Boston, Mass., of heart disease, September 10. He was born Aug. 27, 1828, in Weymouth, Mass. His family traced its ancestry beyond even early colonial days to England, where it gave the name to the town of Fifield. He was a graduate of Phillips Exeter Academy and of the Harvard Medical School in 1851. He went to England and took the full course in the Royal College of Surgeons. He was a licentiate of the Royal Ophthalmic Hospital and a member of the American Medical Society of Paris. From the beginning of his practice in Boston over forty years ago he took a high position in the profession. For fifteen years he was on the staff of Boston City Hospital and was on the consulting staff at the time of his death. He had also long been a fellow of the Massachusetts Medical Society.

EDWARD S. Farrington, M.D., at New York City, September 7, aged 31 years. He was educated at Yale, and was a graduate of the College of Physicians and Surgeons of New York, class of 1892. Dr. Farrington was connected with the outdoor work of Bellevue and New York Hospitals.

WILLIAM R. BRICKER, M.D. (Medical Department of the Western Reserve University, Cleveland, Ohio, 1857) at Shelby, Ohio, September 7. He was among the oldest citizens of Shelby, practiced his profession there over 50 years, having celebrated his 51st anniversary September 5. He was born in Schaefferstown, Pa., October 6, 1820.

ALEXANDER H. MCADAM, M.D. (Department of Medicine of the University of Pennsylvania, Philadelphia, 1863) at Philadelphia, September 9, aged 57 years. He was, for seven years, physician of St. Mary's Hospital, and since 1869 had been prominently connected with educational matters in Philadelphia.

WILLIAM M. KELLY, M.D. (Medical College of Indiana, Indianapolis, 1870), at Knox, Ind., August 28.

MISCELLANY.

For the Deaf and Dumb of Ohio.—The law has been amended so that it now provides that no person shall be received in the institution for the education of the deaf and dumb of that State under 7 (instead of 8) years of age, or remain there longer than twelve (instead of, as heretofore, ten) years.

The Megaloscope.—The *Ungarisches Archiv f. Med.* No. 3, describes an instrument constructed on the principle of the telescope which magnifies the objects shown by the endoscope. The illustrations are specimens of the work of the megaloscope showing the finest details of various sections, urethritis granulosa, etc., in the natural tints.—*Wien. k. Rund.*, No. 33.

Ohio Charitable Societies Can Sell Real Estate.—Section 3,794 of the revised statutes of Ohio, providing when and how religious societies may sell, exchange, or mortgage their real estate, whether held in trust or not, has been amended, among other respects, by extending its application to any charitable society or association, and this whether the trustees are willing to take steps in the matter or not.

Contrast Staining.—Bacteria and cell-nuclei can be differentiated rapidly and easily by first staining the prepared dry section with a diluted watery solution of methylene blue, then rinsing it in water and after drying, placing it in a watery solution of eosin, 0.1 to 100, for one minute to a minute and a half. The eosin drives out the blue and takes its place in the tissues, while the bacteria retain the blue longer. This method is recommended in the *Deutsch. med. Woch.*, August 20, as exceedingly simple and sufficiently accurate for general purposes.

Ink for Writing on Glass.—*Nouveaux Remèdes*, August 24, describes a new ink that will write on glass, and can take the place of paper labels on bottles, etc., as it is indelible. It is made by dissolving 20 grams of brown lacquer (not heated) in 150 c.c. of commercial alcohol, and mixing this, a drop at a time, with a solution of 35 grams of borax dissolved in 250 c.c. of distilled water. It can then be colored as preferred; 1 gram of methylene violet, for instance, will produce a handsome ink.

A Child in Legal Definition.—In a case brought under a statute "for the prevention of cruelty to children," the supreme court of Georgia holds, Collins v. State, that the word "child" as used therein, means one of tender years, or a person between infancy and youth, and that a male person who has attained the physical strength and stature of manhood, and who is "almost as large as his father, but not quite as strong," is not a "child," in the sense in which the word is used in such law.

Confirmation by Bacteriologic Diagnosis of Epidemic Cerebro-Spinal Meningitis.—When Heubner announced his discovery on the living of the microbe of this disease, he remarked that lumbar puncture would become still more important as a means of differentiation. Fürbringer now reports several cases diagnosed by lumbar puncture promptly and accurately, with the discovery of the meningococcus intracellularis in the spinal fluid. The cultures showed the characteristic diplococci enclosed in the capsules which refracted the light like a halo around them. The cocci were often assembled in four, six and eight pairs, especially in the older cultures. The median dividing line in the pairs of cocci forming tetrads was very distinct and noticeable. Gram's solution usually decolorized them like the gonococcus, but occasionally the microparasites partially retained their coloring.—*Deutsch. med. Woch.*, August 20.

New Jersey Law as to Indigent Insane Amended.—The New Jersey statute of 1895, respecting hospitals for the insane and the admission of indigent patients thereto was amended by an act approved March 26, 1896, omitting, in the first part of Section 1, the clause apparently tending to restrict its application to any county "in which there is a hospital for the insane," and providing that application for an investigation of a case may be made not only to any judge of the court of common pleas in such county, as heretofore, but also to any judge of a criminal court established in a city of the first class in such county, while police justices are deprived of jurisdiction.

Provision for Ohio's Aged Deaf and Dumb.—A law was passed in Ohio, April 27, 1896, providing that any incorporated association organized for the purpose of providing a home for aged and infirm deaf and dumb persons may enter into a contract with the board of county infirmary directors of any county for the care and maintenance at such home of any aged or infirm deaf and dumb person who may be an inmate of the county infirmary or who may, under the laws of the State, be entitled

to admission thereto. And in every such case the county in which such infirmary is situated shall, during the period such person may remain in such home, pay to such association, annually, a sum equal to the per capita cost of maintaining inmates in the infirmary of such county.

Decision Relative to License to Practice in Colorado.—Attorney General Carr has recently decided that the State Medical Board of Colorado has no right to revoke a license to practice except after conviction of some penal offense.—*Denver Med. Times*, September.

Improvement in Transportation of the Wounded.—Meyer of Berlin, has invented a new spring floor for ambulances which rests on four rubber balls 1½ cm. thick and 12½ cm. in diameter. The balls are filled with air and held in place by bowl shaped rests above and below fitted with springs. There can be two of these floors, one above the other to secure extra elasticity.—*Deutsch. med. Woch.*, August 20.

Traces of Poisons in Normal Urine.—Kossa accidentally noticed indications of poisons in normal urine, and further investigations confirmed this experience, disclosing traces of arsenic, copper and mercury in the urine of numerous healthy individuals examined. He is inclined to think that these substances are not totally eliminated by the organism, and that in time the accumulated amounts might have an important bearing in certain medico-legal cases.—*Wien. kl. Rund.* No. 33, from the *Ungar. Arch. f. Med.*, No. 3.

Petroleum from Linseed Oil.—The paper read by Professor Sadtler at the recent A. Ph. A. meeting was a record of some very interesting experiments upon linseed oil. It was shown that by subjecting this oil to destructive distillation, under pressure, various products identical with certain petroleum hydrocarbons can be produced. This fact is of greater significance than is at once apparent. It bears directly upon and affords proof of one of the two theories regarding the origin of petroleum. These theories are, one that petroleum is of animal, the other that it is of vegetable origin. Possibly both are true. Without discussing the theory of animal origin, Professor Sadtler's results would seem to prove the theory of vegetable origin.—*Pharm. Era*, September 10.

Ohio's New Electrocution Law.—By law passed at the recent session of the Ohio legislature, the mode of executing a death sentence must, in every case, for a crime committed after July 1, 1896, be by causing to pass through the body of the convict a current of electricity of sufficient intensity to cause death, and the application of such current, it says, must be continued until the convict is dead. This must be done by the warden of the Ohio penitentiary, or by a deputy, not only within the walls of the penitentiary at Columbus, but also within an inclosure so constructed as to exclude public view. Moreover, all such executions or electrocutions, must take place before the hour of sunrise of the designated day.

Healing of Wounds among the Negroes of Africa.—A surgeon writes to the *Deutsch. med. Woch.*, August 20, from Kamerun, expatiating upon the almost miraculous way in which the wounds of the negroes there heal without complications. He describes a dozen cases of severe wounds, among them five received while out on an expedition, compelled to march through pouring rain with no food but wild bananas, and exposed to the constant fire of the natives at close range, the bullets often nothing but scraps of iron so that the wounds resembled those made by an explosion, and with no surgical attendance for twenty-one days, as it was not a military expedition. The recoveries were rapid and complete with no complications; in some cases a surprising lack of sensitiveness in the parts wounded. He is inclined to ascribe this extreme power of reaction to a race peculiarity, as the absence of wound infecting bacteria in the primeval wilds is not absolutely established, although they must certainly be rare. In fifteen months of residence there he has never heard of such a thing as puerperal fever, and has only had one phlegmon in 906 patients treated. He remarks in conclusion that the surgeon in West Africa is certainly justified in proceeding with the utmost audacity in the conservative treatment of his black patients.

Russian Jury Discounts Expert Testimony.—In a recent case, where a young wife admitted killing her husband, it was brought out that she had a sister who evinced a sudden aversion to her husband on the night of her marriage, and, thereafter being placed under medical observation a report was rendered by the expert that she had probably committed the crime while suffering from the psychologic equivalent of epilepsy, it being observed that she frequently suffered from such complete absences that she did not recognize those around her and that in these instances there was a complete failure of the reflex action of light upon the eye; yet, nothwithstanding this expert testimony, she was placed on trial by jury, convicted and condemned.

Ohio Institutions to be Inspected.—An Ohio law was passed in April, 1896, which provides that every private or public hospital, reformatory home, house of detention, private asylum and any institution exercising or pretending to exercise a reformatory or correctional influence over individuals in the State of Ohio, shall be open at any and all times to the inspection of the commissioners of the county in which such institution is situated, or the board of health of the township, or other municipality in which any such institution is situated. It also makes it the duty of each and every county commissioner to visit, unannounced, every such hospital and other institution in his county at least once in every six months, to note the sanitary condition thereof, and the condition and treatment of the inmates thereof. And it shall be the duty of the county commissioners to file a full and complete report of the investigations of such institutions with the prosecuting attorney of the county, which report shall be open to the examination of the public. Any official agent or employe, or other person refusing to permit or in any manner interfering with the inspection of any such hospital or other institution, by the county commissioners of the county, or by the board of health of the municipality in which the same is situated, shall be deemed guilty of a misdemeanor, and shall, upon conviction, be punished by a fine of not less than $25, or six months' imprisonment, or both, and for each subsequent offense a fine of not less than $100 and six months' imprisonment.

The Peppermint King—According to the *Chemist and Druggist*, July 25, Mr. H. G. Hotchkiss of Wayne County, New York, bears appropriately the above title. About fifty years ago that gentleman kept a store at Phelps, near the Wayne County line in the peppermint belt. Mr. Hotchkiss had taken peppermint oil from farmers in payment for goods until he had on hand so much of it that he would lose money if he could not dispose of the lot for $1,000. The problem was to find a market for all that oil from an unknown peppermint-producing district. He put his oil in tin cans and took it to New York City. None of the drug houses would buy it, because they did not believe that it was pure. This emergency brought the business ability of Mr. Hotchkiss to the surface. The now old-fashioned 21-ounce, lipped ink bottles had just come in and Mr. Hotchkiss purchased a lot of them, removed his peppermint oil from the tin cans, and after satisfying himself that it was as pure as any oil then on the market, placed it in the bottles, hermetically sealing them, and consigned the oil to a house in Hamburg, naming his price if the oil was accepted. At the end of several months' waiting Mr. Hotchkiss received a draft for the amount he had asked for his oil and an order from the Hamburg house for another consign-

ment. Most of the oil was sold back by the German firm to the dealers in New York who had refused to have anything to do with it when Mr. Hotchkiss offered it to them at first hand. The demand for Wayne County oil grew so rapidly that the cultivation of peppermint became the chief occupation of the Wayne County farmers. Mr. Hotchkiss gave up all other engagements and devoted his whole attention to the growing and distilling of peppermint. The average annual yield of peppermint oil in Wayne County is now 150,000 pounds, nine-tenths of which is controlled by the Hotchkiss family of Lyons. Mr. Hotchkiss still packs the Wayne County oil in bottles made after the exact pattern of the bottles in which his original shipment to Hamburg was packed in 1844. For years the Wayne County oil was considered by the trade superior to all others, but the distinction between Wayne oil and Michigan oil has now been dropped from most of the New York price lists.

Are Deaths from Anesthetics due to Failure of the Respiration or of the Circulation.—Despite the dicta and the experiments of Surgeon-Colonel Lawrie of the British army to the effect that the breathing claimed the undivided attention, the London *Lancet* has been engaged in a series of exhaustive inquiries. The members of its commission have investigated 716 deaths from chloroform.

The report presents three series of cases: Series A, derived from the report of the Committee of the Royal Medical and Chirurgical Society, contains 86 cases of death under chloroform; series B, derived from an analysis of the fatalities recorded between the years 1860 and 1891 in various British and foreign publications, contains 596 cases, and series C, derived from the inquiries made by circulars, contains 27 cases from hospitals and 7 from private practice. All these were carefully examined in such a way as to eliminate, as far as possible, the personal belief of the examiner, and to preserve only what had been placed on record by competent persons who were present when death occurred. According to this testimony, in the 716 deaths from or during the administration of chloroform, the pulse was observed to fall first certainly in 183, and propably in 44 more, or more than 31.5 per cent. The respiration was noted to fail first in 73 cases, and probably in 7 more, or only about 11 per cent. Both functions are said to have failed simultaneously certainly in 58 cases and probably in 19 more; and in 322 the point was not noted with sufficient accuracy to justify the statement of any conclusion. But the fact remains that, in nearly one-third of the whole number of fatalities, the recorded opinion of those present was in favor of the result having been due to the failure of the heart rather than to failure of the respiration. It is pointed out, also, that experiments on animals are apt to be misleading, because the subject selected would usually be healthy, while most human subjects in the operating room are diseased. It is suggested, also, that deaths during surgical operations not of a severe kind sometimes occurred before the discovery of anesthetics and were vaguely attributed to shock. The cause, whatever its nature, probably still exists, and its victims are charged to anesthetics. The objection to ether as an anesthetic by most English surgeons has been based chiefly upon the slowness with which it operates and the distress which its administration causes to many patients. Both these disadvantages have now been overcome by combining nitrous oxid with the ether fumes until unconsciousness is produced. Instead of the ether cone an apparatus similar in some respects to that in a well-equipped surgeon-dentist's office is employed. The patient breathes easily into the mouthpiece, the first three or four inhalations being of the gas alone. The ether fumes are gradually substituted. In two minutes the patient is unconscious, and there is no choking or distress such as the ether alone often produces. The latest report upon the possible dangers of chloroform is likely to lead to the rapid introduction in this country of this new and safe form of anesthesia.

To Recover Medical Expenses.—In cases of personal injury of a plaintiff through the negligence of a defendant, the supreme court of California says that there is no doubt but that, under a proper pleading, the injured party may recover for such necessary medical expenses as he may have become liable to pay though not in fact paid before suit brought. But the allegation of the complaint must correctly describe the expense as to being one that had been paid or simply incurred. Thus, the court reverses, in McLaughlin v. San Francisco & S. M. Ry. Co., decided July 31, 1896, a judgment for the plaintiff, holding that evidence that the plaintiff had incurred a liability to pay $750 was not admissible under the allegation of his complaint that in attempting to be cured he had necessarily expended, in doctor's bills, the sum of $750.

Hospitals.

THE VIRGINIA HOSPITAL, Richmond, Va., which has undergone most extensive repairs and improvements, after having obtained a handsome and commodious addition, is receiving patients again, after having been closed since July 1. The entire building has been remodeled, and taken in connection with the commodious "John Pope Annex" just completed, makes this one of the most modern and best equipped hospitals in the South.

NEW YORK FLOATING HOSPITAL WORK.—There were 46,253 women and children carried on the Floating Hospital during the season of 1896. More than seven hundred cases of severely sick children were treated in the wards without a death taking place on board.

THE PUBLIC SERVICES.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Sept. 12 to Sept. 18, 1896.

Captain William B. Davis, Assistant Surgeon, is relieved from duty as Attending Surgeon and Examiner of Recruits in New York City, to take effect upon the completion of his examination for promotion and ordered to Fort Brady, Mich., relieving Captain Charles Richard, Assistant Surgeon. Captain Richard, upon being thus relieved is ordered to New York City as Attending Surgeon and Examiner of Recruits.

Captain Louis Brechemin, Assistant Surgeon, is relieved from duty as Attending Surgeon and Examiner of Recruits, Baltimore, Md., to take effect on completion of his examination for promotion, and ordered to Fort Sherman, Idaho, for duty.

Captain W. Fitzhugh Carter, Assistant Surgeon, will be relieved from duty at Fort Sill, Oklahoma Territy, Oct. 1, 1896, and ordered to Baltimore, Md., as Attending Surgeon and Examiner of Recruits.

First Lieutenant William E. Purviance, Assistant Surgeon, is relieved from duty at Fort Sherman, Idaho, and ordered to Fort Columbus, New York, for duty relieving First Lieutenant Thomas J. Kirkpatrick, Jr., Assistant Surgeon. Lieutenant Kirkpatrick, on being thus relieved, is ordered to Fort Douglas, Utah, for duty relieving First Lieutenant George D. DeShon, Assistant Surgeon. Lieutenant DeShon, on being thus relieved is ordered to Washington Barracks, D. C., for duty.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending Sept. 19, 1896.

Medical Inspector Daniel McMurtrie, promoted to medical director from September 3.

Surgeon L. G. Heneberger, detached from naval hospital Widow's Island, Maine, ordered home, and then await orders.

Change of Address.

Brooks, S. D., from St. Louis, Mo., to U. S. Marine Hospital, Port Townsend, Washington.

Hull, Geo. S., from Chambersburg, Pa., to Pasadena, Cal., Box 176.

McGahan, C. F., from Bethlehem, N. H., to Aiken, S. C.

Pritchard, W. B., from 347 W. 58th street, to 105 W. 73d Street, New York, N. Y.

Reichman, Max, from 624 S. Center Avenue. to 616 W. 12th Street, Chicago, Ill.

Woodbury, Frank, has returned to his office and residence a 218 S. 16th Street, Philadelphia, Pa.

LETTERS RECEIVED.

Ayer, N. W. & Son, Philadelphia, Pa.: Alma Sanitarium Co., Alma, Mich.; Alta Pharmacal Co., St. Louis, Mo.; Allenburger, C. A., Shelby, Neb.

Blodgett, F. J., New York, N. Y.; Battle Creek Sanitarium, Battle Creek, Mich.

Christopher, H., St. Joseph, Mo.; Cantrell, G. M. D., Little Rock, Ark.; Cleaves, Margaret A., New York, N. Y.

Dussau, Anibel Eustace, New York, N. Y.; Drevet, Mfg. Co., The, New York, N. Y.

Ellis, W, H., Barron, Wis.

Freeman, Leonard, Denver, Colo.

Goss, E. L., Sheffield, Iowa; Gutten, B. C., Oshkosh, Wis.

Hadenstein, I., New York, N. Y.; Hughes, C. H., St. Louis, Mo.; Haughton, R. E., Richmond, Ind.

Johnson & Johnson, New Brunswick, N. J.

Kilbride, Thos. F., Ayrshire, Iowa; King, E. A., Sweet Home, N. C.

Loanco Rubber Co., Boonton, N. J.; Laughlin Pen Co., The, New Haven, Ind.

Musgrove, Thos. W., Fairhaven, Wash.; Merrick, M. B., Passaic, N. J.; McNew, H. L., Honey Grove, Texas; Martens. E. J., St. Louis, Mo.

Nolder. S. M., Fairmount, Ind.; Noyes. Guy, L., Traverse City, Mich.

Richardson, E. H., Atlanta, Ga.; Reyburn, J. A., Elkhorn. W. Va.; Rawson, A. A., Corning, Iowa; Reed & Carnrick, New York, N. Y.; Riley. N. H., Boulder, Colo.

Straw, J. R., Ashland, Wis.; Shertzer, A. Trego, Baltimore, Md.; Stearns, F. & Co., Detroit, Mich.; Seaman, Frank, New York, N. Y.; Small, Freeman E., Portland, Me.

Tompkins, Christopher, Richmond, Va.; Truax, Greene & Co., Chicago.

Vandervort, F. C., Bloomington, Ill.

Wood, E. S., Fairmount, Kan., Walton, Ernest F., New York, N. Y.; Willinghom, R. H., Niagara, Ky.